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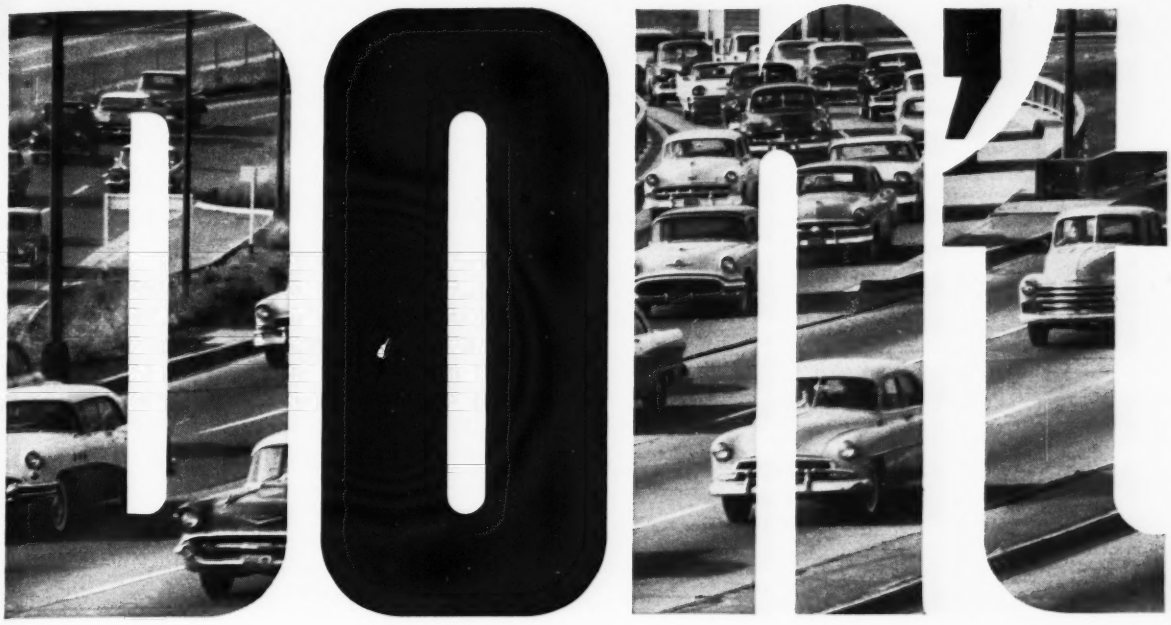

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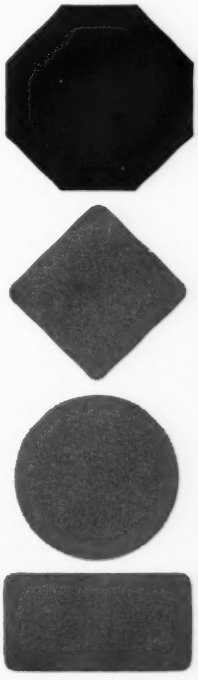

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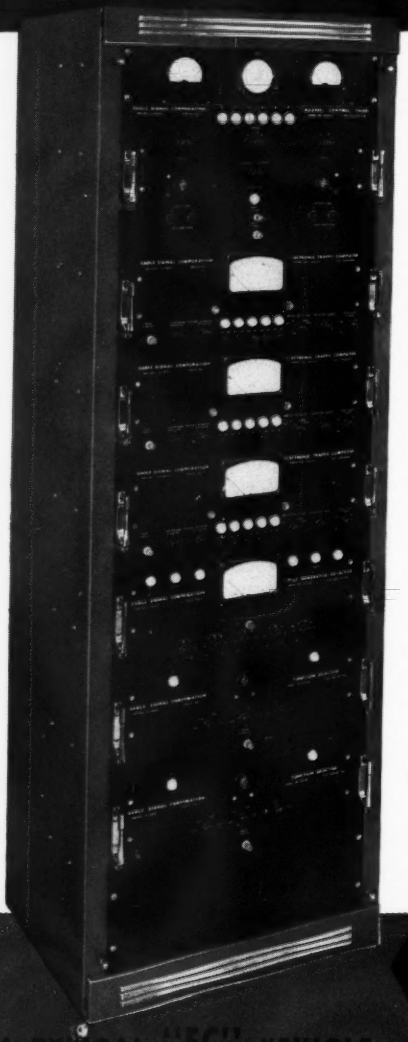

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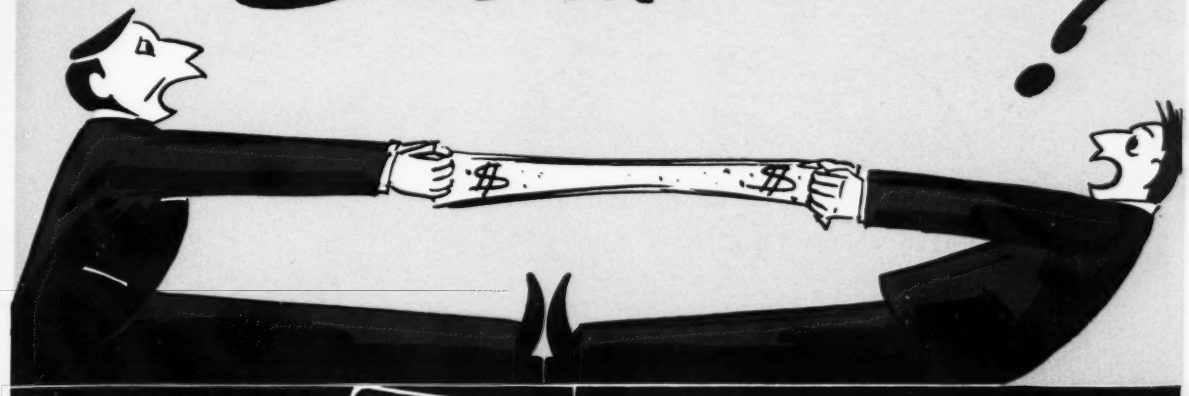

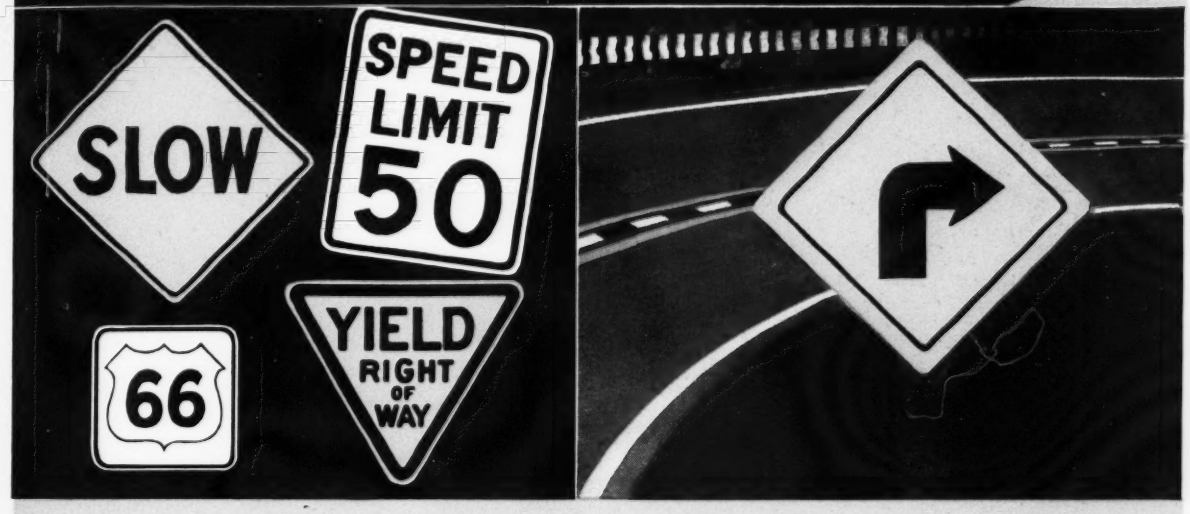

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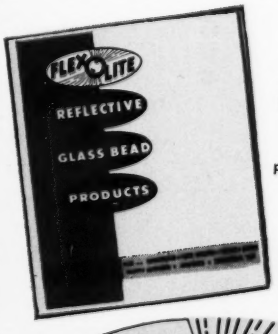

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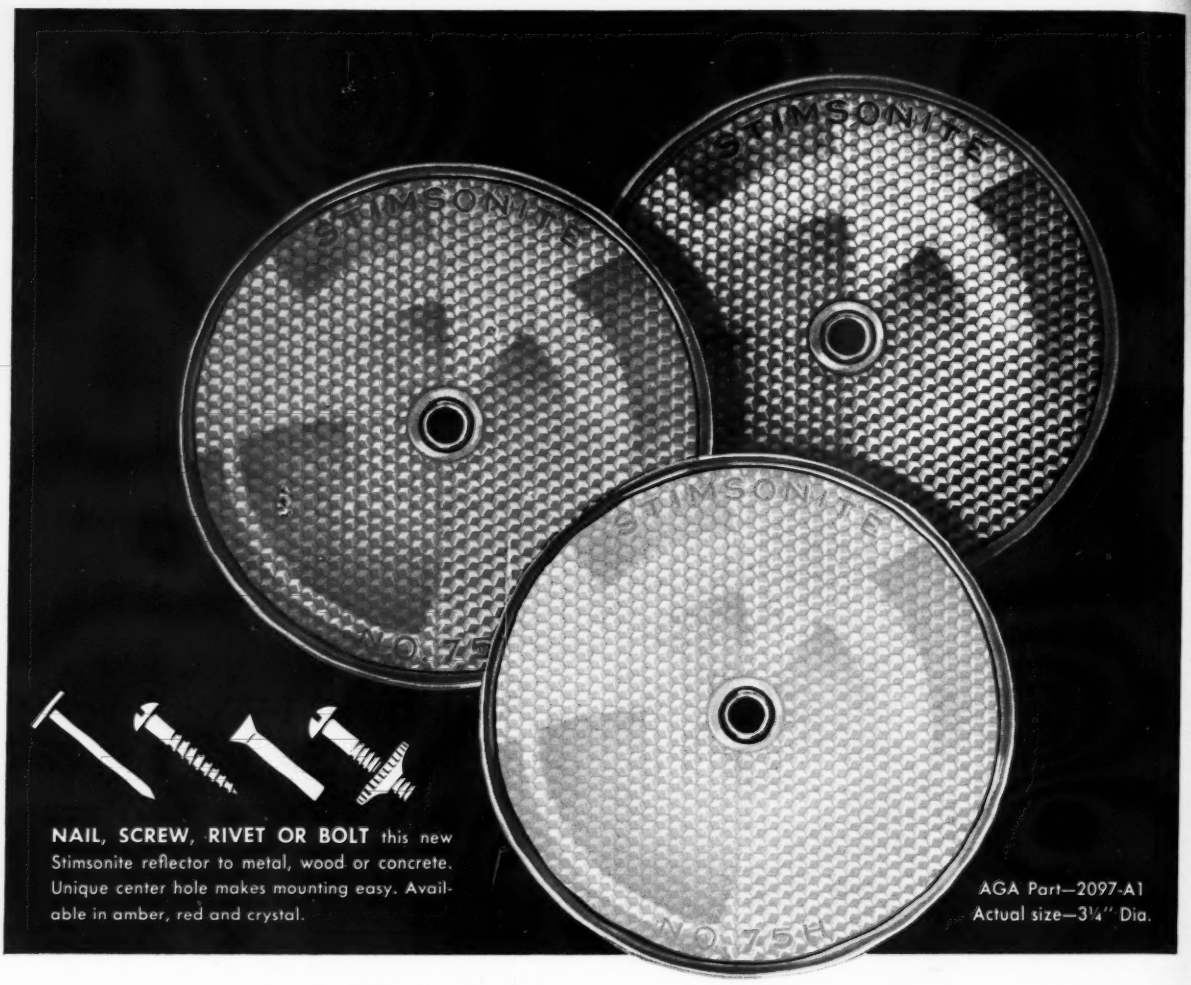
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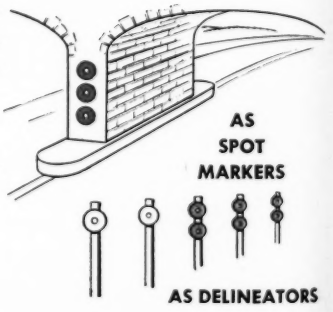

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COVER: At one of the points of heaviest traffic concentration in Ontario, provincial highways now merge with metropolitan and city roads at the Humber River, the western entrance to Toronto. In the foreground, Highway No. 2, right, and the controlled-access Queen Elizabeth Way, centre, join with the Frederick G. Gardiner Expressway east of the Humber River bridges. At left, is the Queen Street Extension which serves local traffic in the Metropolitan area. City of Toronto is shown in distance with Lake Ontario shoreline at right. —Photo courtesy Ontario Department of Highways

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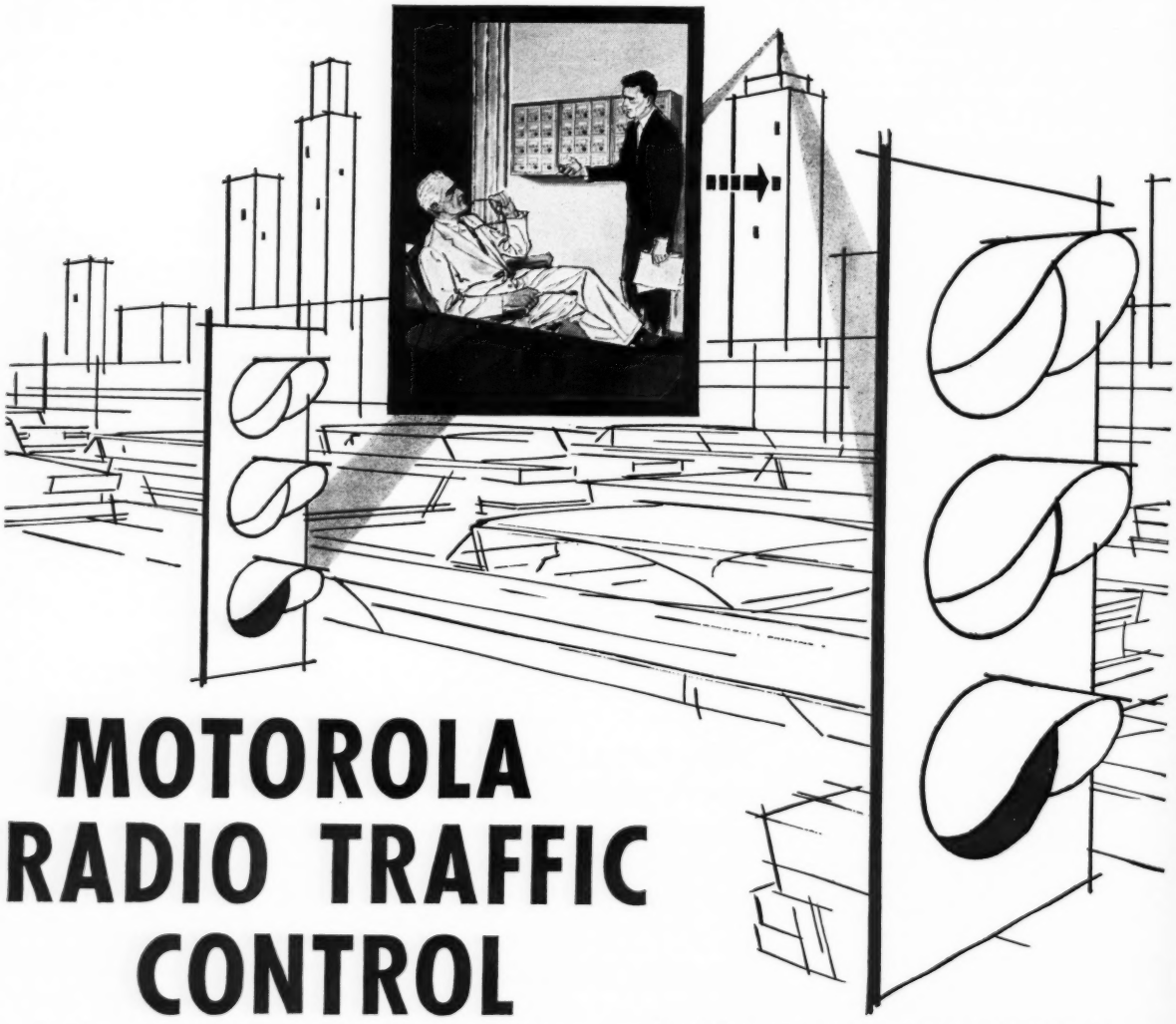

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Frankly Speaking . . .

THE FOLLOWING is a news release that recently caught my attention:

> "For the first time in their national history, Americans are beginning to display humility.
>
> This new-found virtue was painfully acquired through a series of shattering disappointments that destroyed 'the illusion of American omnipotence'. But it may become America's greatest asset in giving the world mature and responsible leadership."

I could not help but think of the magnitude that such a virtue could have in the profession of traffic engineering. One of the biggest problems that confronts us in the everyday operation and design of transport facilities is the need to be cognizant of the lack of humility on the part of the road user. If the "man-behind-the-wheel" would develop a complete sense of understanding in keeping with his faith, what a simplified task would await us. The millions of dollars that have been spent, the billions of dollars that are being spent, and the trillions of dollars to be spent in the field of traffic safety and accident prevention, could well be channeled into other areas of betterment, if the American public and their driving habits were completely attuned to a humble understanding of the rights of men.

But, have we actually arrived at a point where we, the American public, have developed this complete sense of humility in our driving habits? I think not. It then behooves those of us in a profession responsible for designing and operating safe and efficient highways for the motoring public to continue to exercise the utmost in our skills and to enhance our profession through research to the end that until man develops a complete and full understanding of and for himself and others that we who are charged with this great responsibility will continue to do the job which confronts us.

No other profession has done so much nor contributed so much in the field of pure researeh in traffic safety as has that of traffic engineering. Through our Institute we are accomplishing many things, and we are capable of accomplishing many more. But for these things to be accomplished and to be made worthwhile in the total evaluation of good, we must increase our efforts. If we wish to chance the future of the profession of traffic engineering, then much of this research must be done through our own professional organization. To do this requires manpower and funds, and the source of both comes from us, the members of the Institute. We, the membership, should be thinking of tomorrow as well as today, and instruct our officers to promulgate and to promote an area of study and understanding as will accomplish this.

Let each of us, too, in order to accomplish the good of the virtue of humility practice this as we go from day to day in the operations of our job, as we talk before civic and public groups; let us see if we cannot foster an early realization of the full affluence of humility in the profession of traffic engineering.

J. AL. HEAD
Director, District 6
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Aerial Photography for Parking Surveys

—*a Swedish Experiment Using Stereo Pictures*

By Sven Tynelius
Town Planning Officer
Eskilstuna, Sweden

THE ENORMOUS GROWTH of traffic in postwar Europe — and not the least in the Scandinavian countries — has created considerable parking problems. At the beginning of 1959 there were some 1,800,000 motor vehicles in Sweden, viz: one to every four inhabitants, or the highest ratio in Europe. However, since our registration figures include 700,000 motorcycles and mopeds (motor-bicycles), we still have a long way to go before becoming a "nation-on-wheels" in the American sense. In a medium-sized industrial town such as Eskilstuna (pop. 58,000,) every sixth person is a car owner and, within the next 10 to 15 years, we expect car ownership to be doubled. We shall then have—if not before—*real* parking problems! But even today, parking is one of the knottiest problems facing a town planner.

While undertaking a study trip in the U.S.A. in the autumn of 1956, I could not fail to be impressed by the way in which an American city differs in structure from the older cities of Europe, and how much more room the motorist has to manoeuvre in despite the high rate of development in downtown areas. Many Swedish towns have narrow streets dating from the Middle Ages. Eskilstuna—a relatively young town—happens to be celebrating its 300th anniversary this year, and it was in this town that, in 1950, the first Swedish attempt was made to *conduct a parking count from the air with the aid of stereo pictures.* As far as is known, we are unique in Europe in this respect.

In 1947 an aerial parking survey was carried out in the Swedish city of Malmö by means of oblique photographs. It was found that the conglomerations of buildings in the city center often obscured the view and, in some

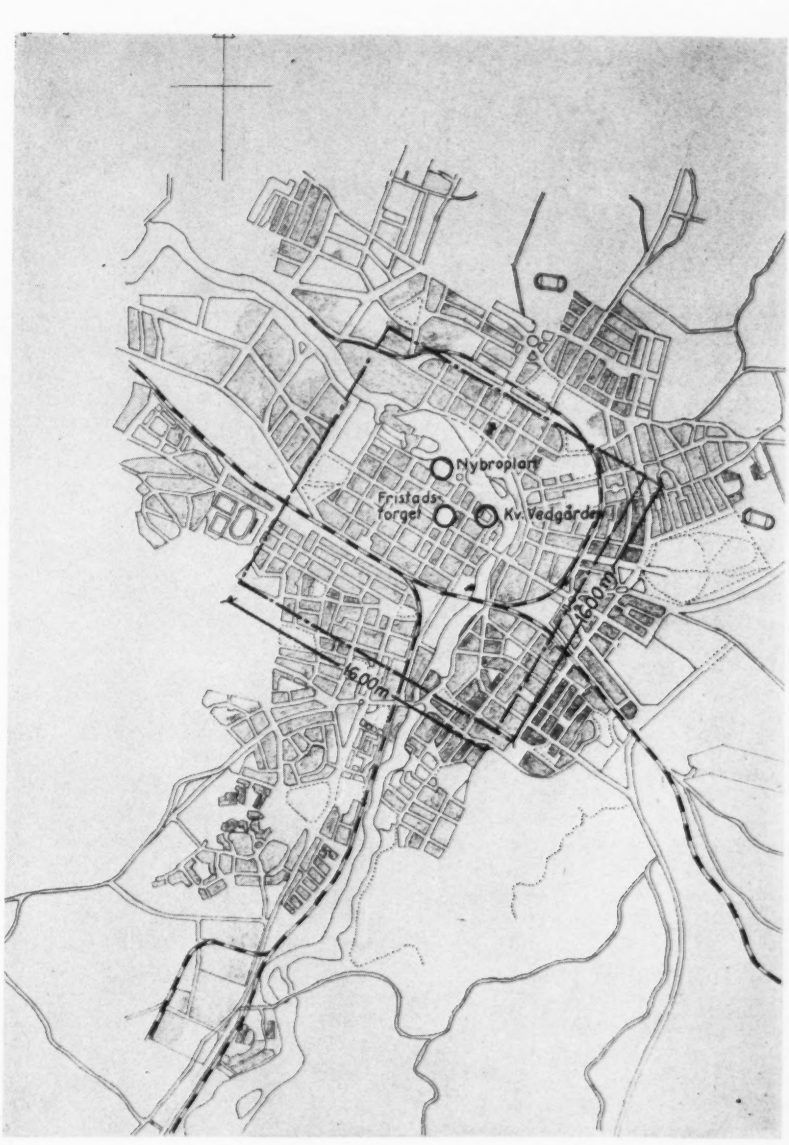

Figure 1
General map of Eskilstuna showing the area under review and the three central parking places.

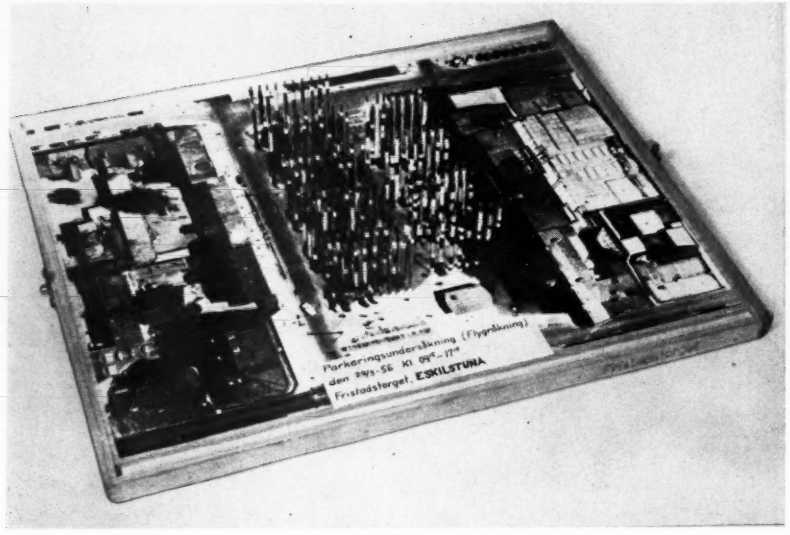

Figure 2
Parking model of Fristadstorget, Eskilstuna, on May 29, 1956, 9.15 - 17.15, showing half-hourly parking frequency (turnover) during 14 time units per parking space (one vehicle).

cases, streets had to be photographed from two directions to enable pinpointing of the cars parked along the curbs. By using suitably long exposure times it was possible to differentiate between moving and stationary vehicles. However, due to the screening effect of the buildings, the area of observation on each picture was greatly limited. The method was not applied practically thereafter.

This factor prompted Professor Hallert of the Department of Photogrammetry at the Royal Institute of Technology in Stockholm to suggest the use of vertical photographs instead of oblique photographs since, if these are taken at a sufficiently high altitude, the screening effect of the buildings can be eliminated. Furthermore, if vertical photographs are taken in such a way that they are suitable for stereo processing, there is a pronounced difference between stationary and moving vehicles. When photographed stereoscopically, a stationary vehicle occupies the same position in both pictures and appears in the stereoscope as a three-dimensional object on street level. A moving vehicle, on the other hand, produces no stereo effect. As a result, *when vertical photographs are stereo-processed, all the moving vehicles can easily be eliminated from a parking count.*

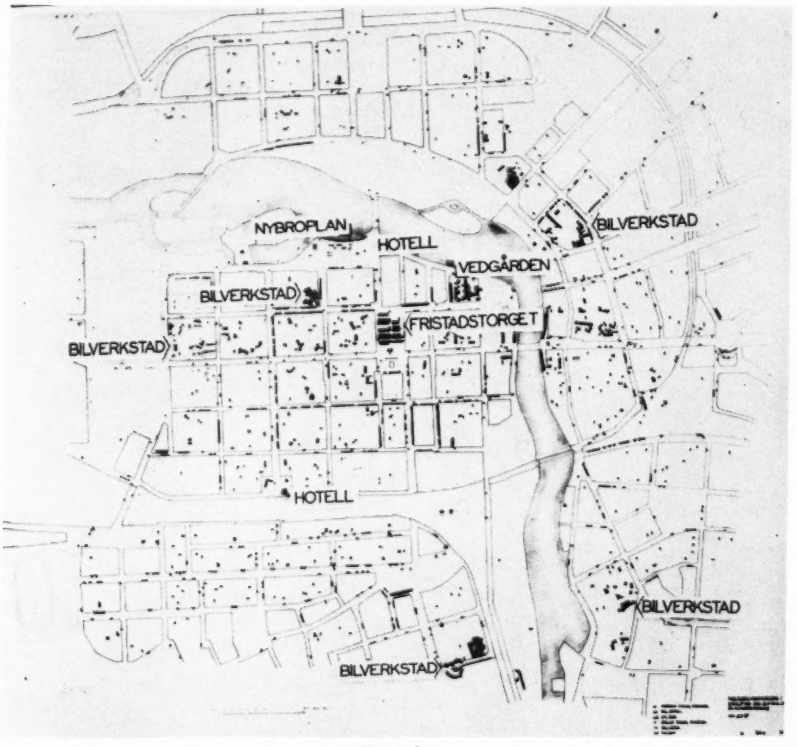

Figure 3
Total traffic situation in the area under review at Eskilstuna on May 29, 1956, at 10:15. Only 7 per cent of the vehicles in the actual center were mobile (dots) and 93 per cent (rectangles) were parked.

In 1954 a second attempt was made to take an aerial survey of the overall traffic situation in downtown Eskilstuna. The pictures were taken and procesed by a unit of the Swedish Air Force (Kungl. Södermanlands Flygflottilj). The findings were that only about 10 per cent of the vehicles shown on the photographs were in motion — a proportion that placed the parking problem in high relief. The photographs also pinpointed those places where parking was most congested. Cars were found in particularly large numbers in the vicinity of hotels, boarding houses and filling and service stations. In order to ascertain the extent to which *parking frequency* (turnover) could be determined from stereo pictures, aerial photography was coordinated with the recording of license numbers by ground staff to compose a limited frequency check within a given parking lot. The technique adopted was to compare stereo pictures taken at different times. The lack of stereo effect among certain parked cars would then disclose that they had been replaced by others.

The results of this survey were so encouraging that a more comprehensive survey was made in 1956. The necessary funds were provided by the Swedish State Committee for Building Research.

The 1956 Survey

The prime objective was to ascertain the reliability of the stereo method as a means of determining the frequency (turnover) of a parking place. A secondary task was to arrive at the most practical means of applying the method. Time comparisons were to be made between this method and the current ground census and the relative costs assessed. Special problems, such as the influence of shadow on correct

picture interpretation, were also to be studied, as was the screening effect of trees.

The area under review was a 1600 x 1600-meter section of central Eskilstuna. The aerial photography and the processing of the photographs was entrusted to Dr. Percy Tham, Airborne Mapping Ltd., Stockholm.

The photographs were taken from a height of 630 meters, i.e. a photographic scale of 1:3000, with a photogrammetic survey camera — a Wild Aviotar with standard focal length lens. The optical data are f:4.2/210 and the negative size 18 x 18 cm. The area was photographed during four overlapping runs. In view of the stereo-procesing requirements the overlap per course was at least 60 per cent. The following data were valid:

Number of photographs per unit time	about 36
Number of photographs per run	about 9
Time interval between photographs	4-4.5 sec.
Time interval between runs	3-4 min.
Area per photograph	about 30 hectares
Useful area per photograph	about 10 hectares

The stereo-processing was carried out with the aid of an ordinary so-called pocket stereoscope.

Assessment of the Parking Frequency (Turnover)

Within the area, a *frequency investigation* was carried out at the two largest parking places, while spot investigations of the traffic situation as a whole were made throughout the area. The situation was plotted every half hour between 9:15 and 17:15. Between 13:00 and 15:00 a break was made to allow the aircraft to be refuelled.

As a means of checking the results of the aerial investigation of the parking frequency (turnover) at the two central parking places it was arranged that the car registration numbers should be recorded. This was done by 27 school children. Counts were to be commenced at exact radio time so as to provide synchronization with the aerial photographs.

The data obtained from the aerial photography and the number census were processed by the company and the town-planning office, respectively. Not until the results were complete (about 2,000 checks) did we attempt to collate the data provided by the two methods.

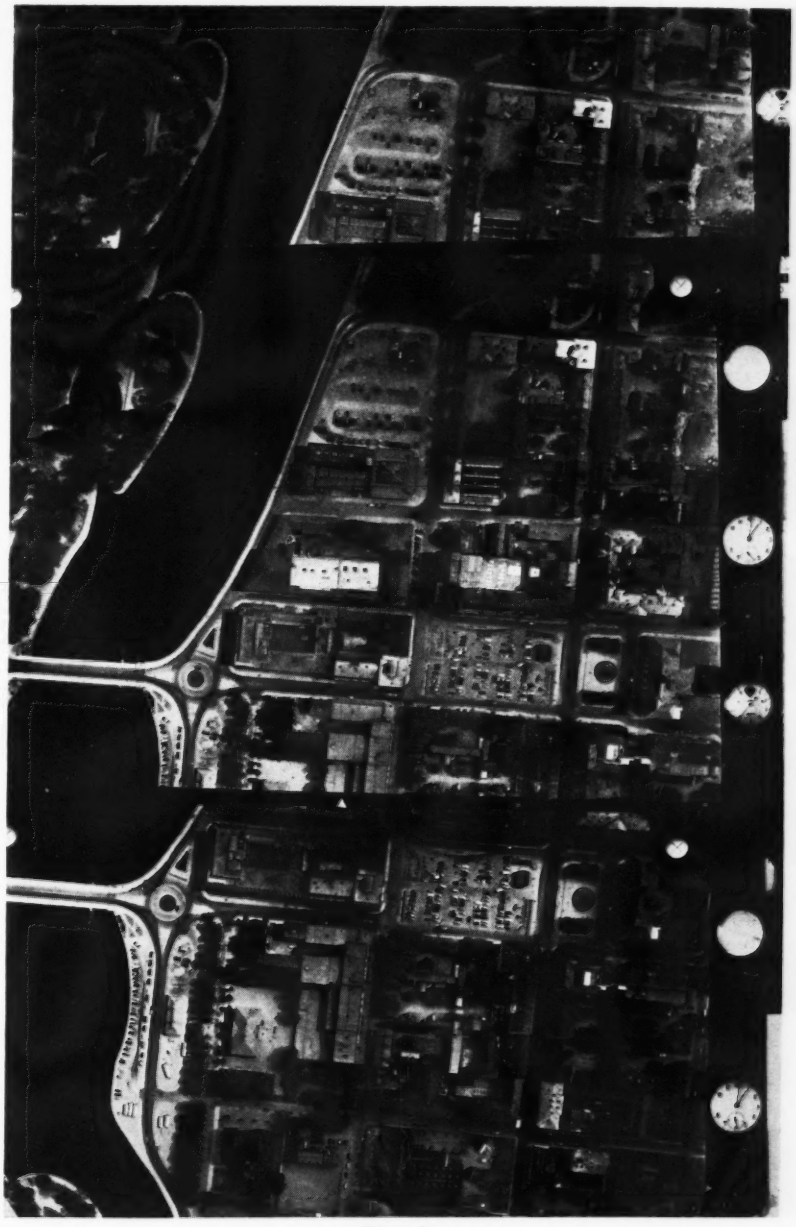

Figure 4
Stereo photographs of the centre of Eskilstuna on May 29, 1956, at 13.01. Taken in the shadow with the sun high in the sky (thus simplifying interpretation).

The results of the processing of the comprehensive aerial-photograph data for the two parking places subject to frequency control were illustrated by *parking models* (see Fig. 2). They were easy for the scanner to work with. The variously coloured plastic rings for each newly-parked vehicle also permitted a quick and clear picture of the parking frequency (turnover) on the site.

All the component results of the *ground census* were plotted on a 1:400 map of the two central parking places. Each parking space (one vehicle) was represented by 14 time squares in which the parking coverage was marked by colors corresponding to those of the plastic rings on the parking models.

In the case of the two public parking places under review, the variation in the results provided by the aerial and the ground methods was 11 per cent, of which 3 per cent could be explained by incorrect counts on the aerial photographs. The remaining 8 per cent was due to:

1. A time difference in some cases of

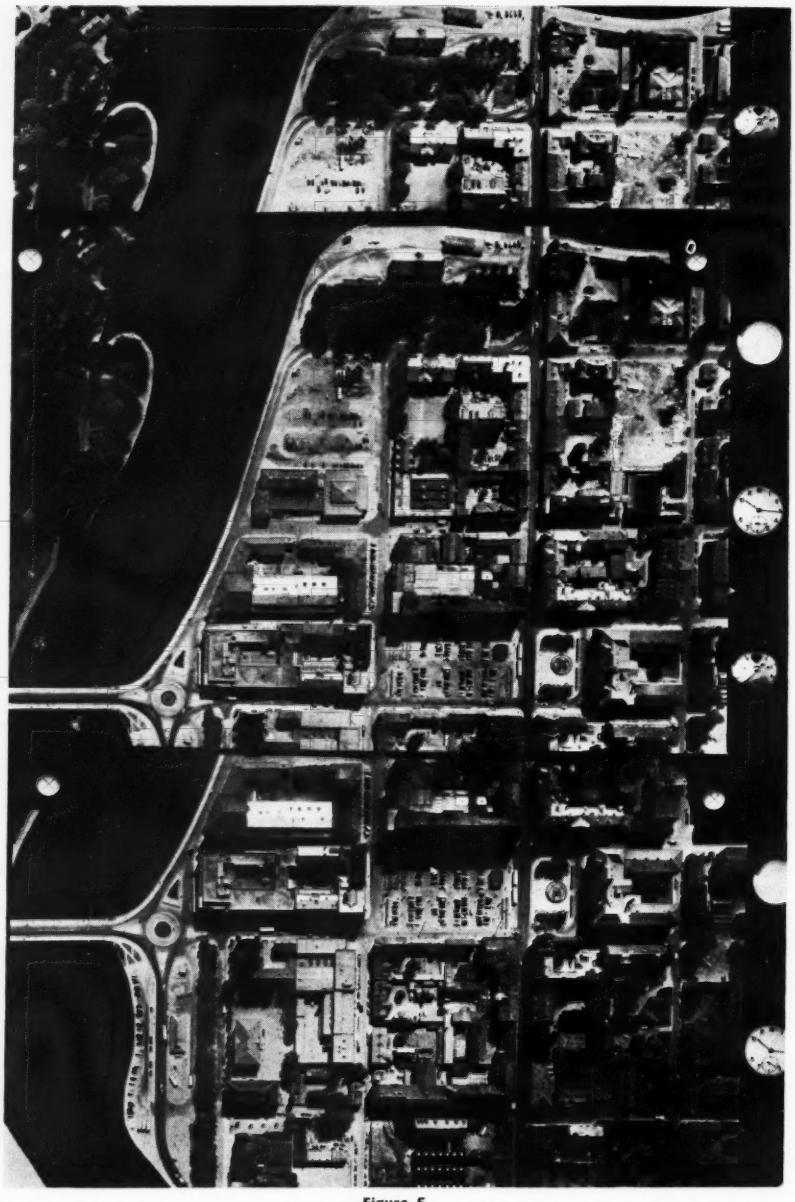

Figure 5
Stereo photographs of the centre of Eskilstuna on May 29, 1956, at 10.15. Mark cast shadows (making interpretation difficult).

up to 60 seconds between the aerial and ground observations.

2. Certain vehicles straddling the dividing line between two parking spaces.
3. Direct errors on the part of the persons recording the registration numbers.

A post-control of the points where the aerial and ground information conflicted was made by experts. This was done with great care and required much time, but it can be said, on the other hand, to have established the accuracy of the aerial photographs. If this is indeed the case, the *degree of error when making a photogrammetric parking survey is very low*, i.e., about 2 or 3 per cent. However, for all practical purposes, a percentage error of 10 is probably acceptable.

Spot Investigation of the Total Traffic Situation

As has been reported above, the entire area was photographed from the air in 14 different time units and a frequency study was concurrently made of the two central parking places (Fig. 3).

As concerns the degree of accuracy of the interpretation of the photographs when making a spot check with the aid of stereo pictures, it was not considered necessary to confirm the results by ground observations except where the blocks contained a confused pattern of courtyards. The checks made show that only screening trees and very marked shadows cause difficulty in interpreting the photographs.

Within the bounds of the total area under review—the population of which is some 18,000 persons—the number of motor vehicles (excluding motorcycles) remained largely constant between 9:15 and 17:15 hours (about 2,200). On the average only 11 per cent were mobile and thus about 89 per cent were parked. In the actual city center, where the population numbers about 3,300, the situation was much the same in that the number of motor vehicles (about 1,000) remained more or less constant. The percentage of vehicles in motion was no more than about 7 per cent, i.e. not less than about 93 per cent were parked. *A noteworthy feature for Swedish conditions was that, of the vehicles parked in the center, not less than 49 per cent were parked on building sites.* The number of registered motor vehicles in the town at the time of the investigation can be estimated at about 7,500 (excluding motorcycles). The population was about 57,200.

The spot checks also left no doubt but that the greatest concentrations of parked vehicles—apart from the fringe of the actual center — were in the region of hotels and boarding houses, filling and service stations, and industrial plants. The three largest service garages had each some 35 to 95 vehicles parked in adjacent streets.

A check was made on the relation between the maximum parking in the city center and the number of vehicles which drove through the area between 6 a.m. and 9 p.m. On the basis of selected traffic checks and certain extrapolations to cover those mornings and evenings when no counts were made, it was confirmed that *the parking peak involved about 11 per cent of the traffic in the center.* This figure is from 1 to 3 per cent higher than that regarded as normal in other places.

Time Requirements and Financial Considerations

The preparation of an aerial parking census is simple. All that is required is the demarcation of the area and the decision as to whether the census is to be in the form of a survey or a frequency check (turnover). On the basis

of a picture scale of 1:3000 the number of runs can be chosen to suit the area to be photographed. If the investigation is to cover a morning and afternoon the aircraft must be able to land for refueling purposes.

As regards the actual investigation it is, of course, desirable from the cost aspect to reduce the flying time to that essential. In many cases it should be possible to combine a traffic census of this kind with some other form of aerial photography, e.g., a survey of redevelopment areas, newly-developed areas, etc. The aircraft requires a crew of three—pilot, navigator and photographer.

The interpretation of the photographs and the plotting of the results differ somewhat as between *spot checks* on the traffic sitaution at different times and *frequency checks* on parked vehicles.

Spot checks are relatively simple and are best done by one person who successively interprets the sets of pictures run after run and makes the necessary notations on a corresponding survey map. It is suggested that mobile vehicles be indicated by a circle and stationary vehicles by a rectangle. Trucks and busses can also be marked by the addition of the letters T and B. An experienced scanner should be able to process an area of 1600 x 1600 meters in about six hours, i.e. six readings per minute (assuming about 2,200 observations).

This assumes that the scanner has had the opoprtunity to familiarize himself with the area and mark off the spots where parking is impossible. A test showed that pre-marking of the map in this way resulted in the area being reduced to 60 per cent. In the investigation under review, four of the spot checks were made by a 14-year-old schoolboy. On the average, he required nine hours to make a correct interpretation of the total traffic situation in the area (about four readings per minute).

At an estimate, the cost (inclusive of flying and photographs) of a spot check of the type carried out in Eskilstuna (per unit time, with about 2,200 observations per unit) *is about Kr. 600 to 650 per unit, or about 25 to 30 öre per observation.*

In the case of a *frequency check* on parked vehicles the interpretation of the photographs takes considerably more time. The scanner must concentrate to a greater degree when comparing, for example, the left-hand picture from one run with a right-hand picture from another to see whether a vehicle has moved. When working at a normal rate the scanner can make some 2 or 3 readings per minute.

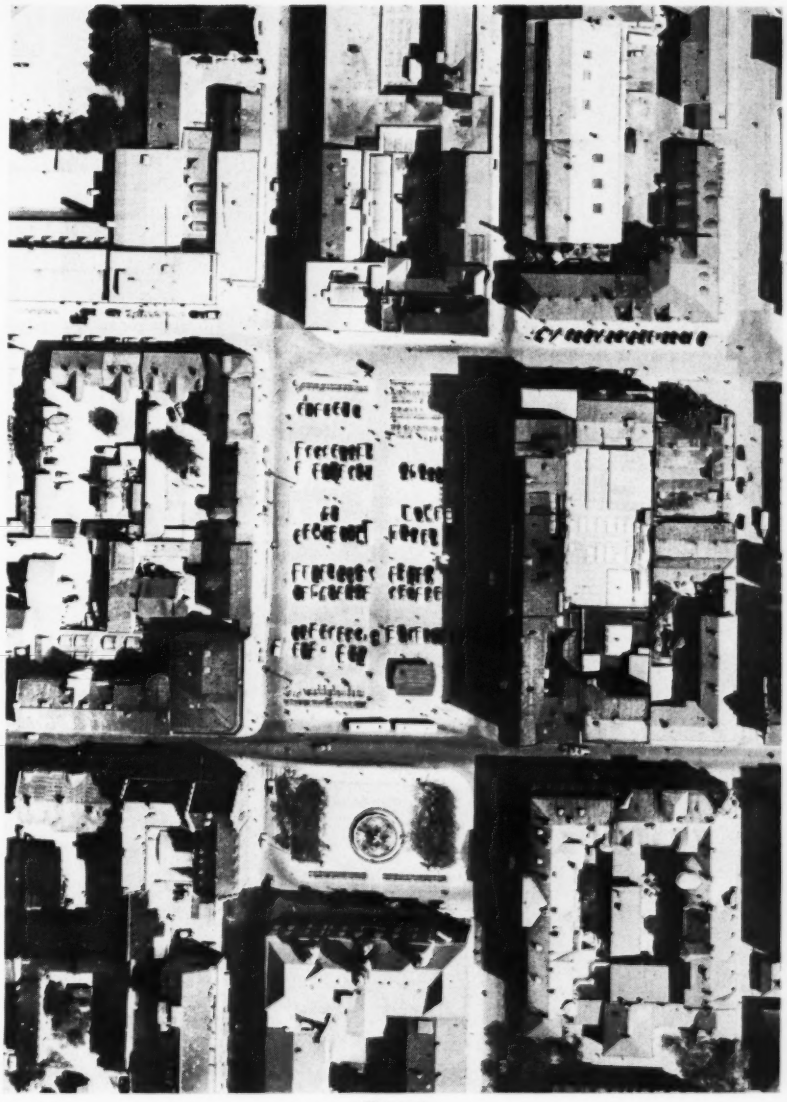

Figure 6
Part enlargement of Figure 5.

At an estimate, the cost (inclusive of flying and photographs) of frequency checks in Eskilstuna, based on the photographs taken in conjunction with the spot check, was about 50 öre per observation.

An estimate of the time required and the cost of a corresponding invesigation made on the basis of *recording registration numbers* is relatively simple, especially since the stereo-photo investigation in question was checked in this manner.

Personnel requirements for a *spot check* have been based on the following assumptions. As regards the center of the town and adjacent streets an average of two spotters per block is required. This figure must be doubled on large parking lots. In all, this means 205 spotters for the entire area or, allowing for a mobile force of 30 to reinforce the numbers at very busy places, 235. Difficulties will always be involved in making a spot check on mobile traffic during certain periods of the day and with as few as two persons per block (not even three spotters per block produce such good results as stereo photographs). At a rough estimate, the employment of 235 spotters for 10 hours at the low rate of Kr. 1.50 per hour (this assuming that school

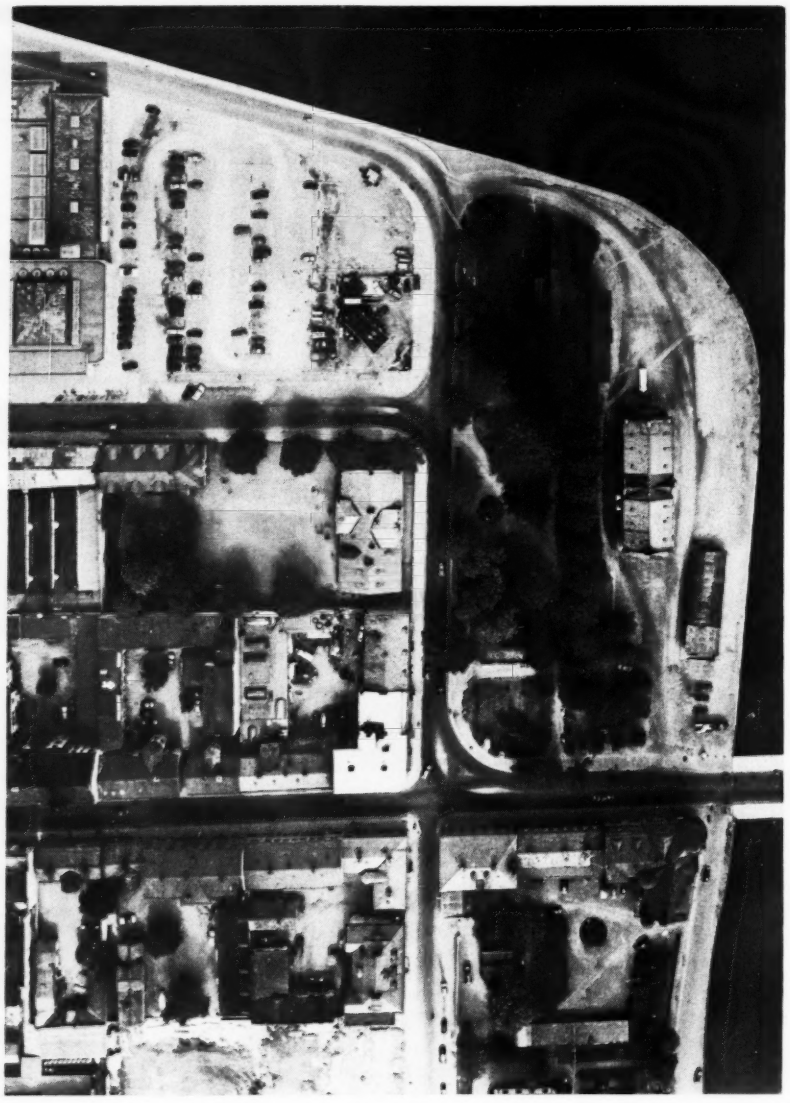

Figure 7
Part enlargement of Smorparken, Eskilstuna, May 29, 1956, showing trees partly hiding the vehicles parked beneath.

children are employed) would cost about Kr. 3,500:—.

Preparatory work included the issue of just over 100 maps (14 copies of each) and the drawing up of census instructions. Furthermore, the spotters must be trained and the investigation must be supervised and checked. Processing is often time-consuming—often as a result of the spotters' inability to make clear annotations.

Thus, the cost of spot checks in Eskilstuna per unit time (about 2,200 observations) pursuant to the registration number method works out at about Kr. 700:—, or 30 öre per observation.

Corresponding calculations show that the frequency checks made with the help of ground staff cost about Kr. 120 per unit time (about 170 observations) or about 70 öre per observation.

Summary

The investigation showed that the photogrammetric method was reliable, although aerial photography calls for a certain time lag between the first and last pictures and, as a result, certain changes cannot be registered. However, this drawback pertains only to traffic moving at right angles to the line of flight, i.e. between areas shown on two adjacent photographs taken on different runs and thus not within one particular run. The margin of error in the case of *frequency checks* is probably some few per cent. In the case of *spot checks* we have direct evidence and, if the photographs are interpreted properly, there should be no error. The aerial method is, of course, objective and everything that is seen from the air is registered. The interpretation is also homogeneous in that the same scanner is responsible for the entire processing. Finally, a check—or reprocessing — can be carried out at any time.

The time taken to prepare an aerial survey is far less than that required for a ground census of the current type. Nor is a large staff required. On the other hand, good flying weather is essential and visibility must be good.

As regards costs, the employment of the aerial method for *large-scale spot checks* is fully comparable with the current ground method. In the case of *independent frequency checks* on a large scale the aerial method still cannot compete with ground checks (recording of registration numbers). Combined with spot checks, on the other hand, it is appreciably cheaper.

At a rough estimate, the comparative costs shown in Table I are applicable.

Quite naturally, costs may vary considerably with local conditions, i.e. flying distance to site of investigation, size of area investigated, character and traffic density. To this must be added a profit margin, a factor which is difficult to assess.

TABLE I

Method	Approximate cost per observation	
	Spot checks	Frequency checks
Aerial	25 - 30 öre	50 öre*
Ground	30 öre	70 öre

*in conjunction with spot checks

Mark this date on your calendar !

29th ANNUAL MEETING

Institute of Traffic Engineers

SEPTEMBER 14 - 17, 1959

Hotel Commodore, New York City

El Monte —

City's Post-Freeway Progress Refutes "Chinese Wall" Fears

by James K. Kimoto
Headquarters Right-of-Way Agent
California Division of Highways

IT IS SAID that because of individual differences, no two persons are the same. Moreover, no particular person is today exactly the same individual he or she was some three years, five years, or any number of years, ago.

Perhaps because in large part they reflect the individuals in them, cities and towns likewise have their differences, and because here too time brings changes, a study of today's city in today's environment is most directly helpful in analyzing the more timely municipal problems.

Thus even though intensive analysis of the freeway "bypassed" city and town has been carried out by the Land Economic Studies Section of the California Division of Highways Right-of-Way Department for over 12 years, careful analysis of current bypass situations still continues, despite the fact that results have consistently tended to confirm even the earliest conclusions indicated. Past experience is thereby regularly tested to see if its lessons are still valid guides to the solution of today's problems. Perhaps even more important, each "bypassed" city and town — because it is not entirely similar to others which may have already been studied — can make its own peculiar contribution to the growing fund of economic impact knowledge.

And so it was, even before freeway construction through the Southern California City of El Monte was completed on July 17, 1956, that area's own particular story had already started to unfold.

Study Situation

El Monte presented in many respects the typical "bypass" situation; nonetheless, with its own significant overtones, it had its own lusty story to tell the world.

What are the peculiar effects upon abutting properties and community business and development of an *elevated* freeway bypass? Does this particular type of freeway construction create the so-called "Chinese Wall" situation — an impassible barrier to community expansion and commercial development? And what happens to the community when *two* former state highways are bypassed — *two highways whose abutting commercial developments account for over 66 per cent of the total business done in the entire city?*

Rich in History

The overall picture of the changing El Monte community would be incomplete without a brief review of some of the past happenings which have shaped the city's present and future, and endowed it with its own individual character.

Founded in 1852 by some dozen families of a gold-seeking caravan headed for the "Gold Hills," El Monte began as a cattle raising community, lost out to agricultural interests, and finally emerged as a thriving Los Angeles County industrial center.

Its two-fisted history is replete with incidents that characterize the "strong rugged individualism" of its people who showed little reluctance to fight vigorously for the things they believed to be right. In the beginning there was a "range war" between the cattlemen and the "squatter families" over land use and fences, a war which continued until the Fence Law of 1869. During the 1850's, with law enforcement almost nonexistent, the "El Monte Boys" rode the range, meting out decisive, though perhaps dubious, justice.

In the 1860's and early seventies, the ranchers agitated against a railroad line going from San Pedro to Los Angeles City because they felt that locomotive power would eliminate the need for horses, which, in turn, would affect the marketing of certain agricultural crops in which they specialized —barley, corn, feed, etc. During the hectic Civil War days, the community was definitely pro-South, and twice the federal troops from Wilmington had to invade the town to restore order. In 1861, 29 El Monte horsemen tried to join the southern armies by going through Texas but were caught and imprisoned for a short term at Fort Wayne.

Before the advent of the Pacific Electric Railroad in 1906, El Monte was one of the stopover points for the Pony Mail, and bars and saloons did a roaring business from people passing through up to the time the temperance sentiment arose at the turn of the century. However, despite its many transients, El Monte, on incorporation date, November 18, 1912, had only 550 people, and the size of the city was a mere 1.21 square miles. Until 1945, the transition from an agricultural to an industrial community was rather slow and gradual.

After World War II, the transition to an industrial economy has been remarkably rapid. Today, there are over 750 highly diversified industrial plants in the greater El Monte area of which 20 per cent are engaged in manufacturing and processing strategic military items. Today, El Monte claims recognition as the house trailer manufacturing center of the United States. It also has unrelated manufacturing industries such as ceramics, chemicals, garments, iron foundries, paints, plastics, and electrical machinery.

Other Factors

To more effectively analyze the effects of the freeway on the com-

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munity, there are other pertinent and important factors that must be considered as well.

First, the tremendous industrial growth that has taken place in Southern California for the past decade has resulted in increased population for many small communities such as El Monte, and this in turn has created the need for expansion of existing facilities and construction of new facilities. Obviously, communities which were able to respond quickly to the demands of the new populace found themselves growing more rapidly than those that lagged. El Monte, with its long history of adjustments, reacted quickly to take advantage of the situation. Its citizens erected a modern civic center at a new location, provided additional recreational facilities, expanded their school system, and provided adequate housing facilities in the form of new residential subdivisions aimed at the moderate income groups. Industries were also encouraged by pointing up tax advantages, good transportation facilities, and adequate utilities.

Second, construction of the Rio Hondo Wash facility (a portion of the multi-million-dollar flood control project to tame the San Gabriel River and its tributaries), has had the effect of opening up considerable land for profitable and lasting development.

Third, El Monte has two railroad lines, the Southern Pacific and the Pacific Electric, which offer added inducement to industries seeking sound locations.

Fourth, the city's strategic geographic location itself. El Monte is ideally situated from downtown Los Angeles, only 13 miles away—a hub for the entire San Gabriel Valley area.

Methodology

This study, like most previous land economic studies, utilizes the "before and after" technique to determine the effects of a freeway on this city whose state routes, Route 26 (Garvey Avenue) and Route 77 (Valley Boulevard) were "bypassed." Sources of information include: (1) the quarterly sales tax data from the Board of Equalization; (2) verified real estate transactions; (3) the U. S. Census; (4) El Monte Chamber of Commerce data; (5) Los Angeles County Regional Planning Commission and Assessor's Office reports; (6) the Research Department of the Security First National Bank; (7) Federal WPA report entitled "A History of El Monte"; (8) El Monte Press; (9) city officials; and (10) real estate brokers, industrial plant managers, and merchandisers of El Monte.

Periods and Area Covered

Because of the complicating effects of the Monte Vista Bypass— a short bypass of the Valley Boulevard downtown shopping section which was constructed after the freeway itself (opening date — December, 1957) — this study does not cover the usual "two years before and two years after" period. Instead a "one year before and a one year after" period has been chosen as the basis of this study. Another reason for using the shorter duration is the fact that a two-year period "after" would also take in much of the difficult-to-analyze general recession effects that commenced from the summer of 1957.

Although the City of El Monte tends to identify itself with the El Monte Postal District, an area five times its size, it was felt that for clarity the city boundaries as they were in 1955 should be utilized, and only the freeway effects on the community and the two major streets therein, namely Garvey Avenue and Valley Boulevard, which were the two former state routes as noted previously, should be considered.

"Chinese Walls"

El Monte citizens were greatly concerned that, in the "after" period, the completed freeway might easily become a figurative "Chinese Wall." The use of this expression has become widespread in planning and development discussion — it is interestingly pertinent to note the sequence by which it is derived.

To its planners and builders, the Great Wall of China was in effect an ancient type of life insurance policy. If its formidable bulk isolated the Chinese Empire from its neighbors and discouraged intruders whatever their mission and intent, it would have served its purpose well. If it presented an insurmountable barrier to intrusion and interchange, it would have been considered eminently successful.

Modern-day planners and builders, of course, deplore structures which in any way tend to isolate and bar, and those things which would have measured the success of the old Great Wall are considered today to be highly undesirable consequences of either private or public building activity. Concern and anxiety when improvements are proposed which in fact might bring about such effects, are thus oftimes expressed by summing up the planned

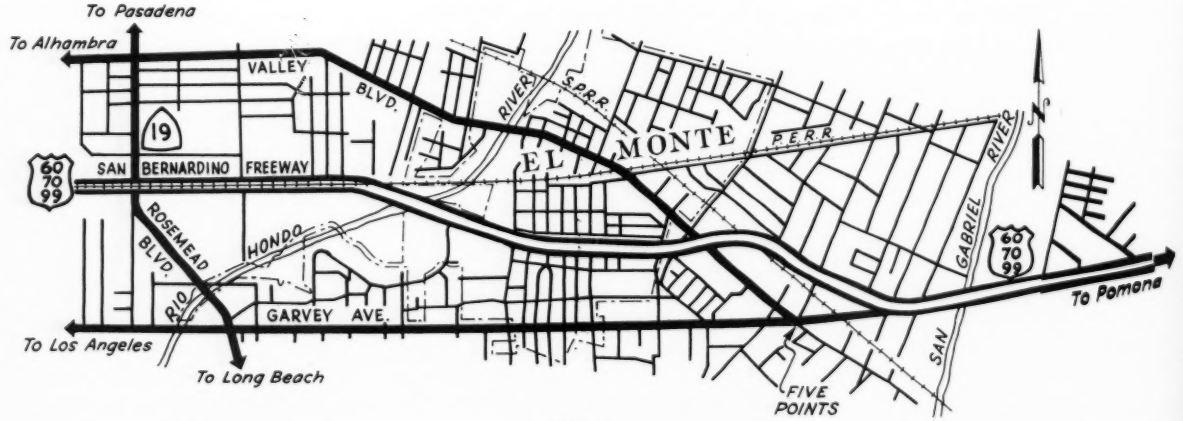

Figure 1

This map shows the new freeway and other streets and highways through the City of El Monte.

facility simply as a "Chinese Wall." El Monte citizens — pointing out five alleged "walls" already in existence—understandably were concerned with the effects of an elevated freeway structure.

The two former state highways with their combined 54,000 average daily traffic volumes constituted barriers one and two; the Southern Pacific Railroad and the Pacific Electric Railroad rights of way made barriers three and four, and the Rio Hondo Wash, bisecting the city in an opposite direction to the others, was barrier number five. The map of the El Monte area graphically depicts this aspect of the overall study situation.

Allegations of premature obsolescence of abutting improvements, creation of isolated areas without possibility of profitable development, introduction of obstructions to further expansion and annexation, etc.—these were the predicted and implied effects through El Monte. What then, are the facts?

Figure 2
An aerial view of the San Bernardino Freeway through the City of El Monte. Peck Road Interchange

Growth and Progress

The size of the City of El Monte at the time of this writing is about three and one-tenth square miles. Annexation of adjacent areas to the city cannot of course take place without the majority consent of affected landowners and residents. A divided city suffering from the many alleged ill effects of any so-called "barrier" division, would doubtless have little attraction to outlying areas. Annexation trends may thus helpfully suggest unincorporated area thinking about the future of the core city, and here is what we find:

1. Since opening of the freeway in July of 1956, annexation of adjoining areas has increased at an annual rate of over 14 per cent per year. In significant contrast to this figure is the annual average trend of approximately 2 per cent for the 43-year period immediately prior to freeway opening. *Almost 59 per cent of the entire 43-year annexation gain for El Monte was accomplished in the two short years following freeway construction.*

2. In the area of land development, analysis reveals that since commencement of freeway construction, approximately 490 new homes have been built adjacent to the freeway. *Indeed, in this highly significant period, new residential building has shown higher totals on the average than for any other period in the last 10 years.*

3. All building permits for the city show additional remarkable gains. *In the year immediately after freeway construction, new building valuation tripled comparable totals of the year before and doubled totals for the year before that.* Activity in both the core city and annexed areas showed decided increases.

Population

Growth, of course, is not measured by one item alone. There are other factors which suggest expansion. Population for instance, by itself may not be significant, but taken collectively with other factors, may well prove illuminating. Prior to the freeway, the population of El Monte was 9,713 (census of November 10, 1955). Less than two years later, the special census of October 10, 1957, discloses that the population of El Monte had grown to 11,507, an increase of 1,794 or 18.5 per cent over the 1955 figure. What is more significant is the fact that prior to the freeway, from 1950 to 1955, a period of *five* years, population had only increased 20 per cent. Perhaps even more significantly, three-quarters of this increase took place within the old city limits and therefore does not reflect increases due to physical annexation. (It is enlightening to note that all of the annexed areas were considered to be "uninhabited.")

Duplication and Isolation

There is no visual or statistical evidence whatsoever of any so-called "isolation" of certain areas as a result of the elevated freeway; nor is there any evidence whatsoever of tangible interference with free and convenient interchange between the two, admittedly more separate, main business streets. *Since freeway construction actually became unmistakably evident, 16 new merchants have established themselves along both of the 'bypassed' thoroughfares and remain in business today.* Moreover, the distinctive character of both streets—one a pedestrian traffic, typical downtown type mercantile area, and the other a commercial strip in its usual form—has been maintained without variation, and there is little reason to suspect that any isolating influences have been at work which might conceivably change this picture.

Sales Tax Analysis

The importance of these "bypassed" business streets to the economic welfare of the entire city has already been indicated. *One hundred forty-four retail establishments along Garvey Av-*

Figure 3
A view of the business district of the City of El Monte looking west on Valley Boulevard. Prior to the opening of the freeway this street was congested with traffic, making shopping difficult.

enue and Valley Boulevard average around 20 million dollars' worth of business a year, two-thirds of the total retail business done yearly in the entire city. Simply stated, if these merchants had taken an "economic beating" from freeway construction and traffic changes, the entire community would have taken a "beating" as well, for there was little else to cushion the blow.

In analyzing changes in gross business volume for before and after periods, we have customarily employed the changes in the parent county as our measuring stick. This is done only after careful analysis has been made of business trends in both the city under study and its county to determine that both have consistently followed an identical trend prior to the freeway change. In the El Monte study, the County of Los Angeles proved itself to be an entirely accurate measure for all major business groups except one—the cafe and bar groups, a situation referred to in more detail hereinafter.

State sales tax data are used in determining the gross volume of business conducted by bypassed or freeway affected merchants in the "before" and "after" periods prior and subsequent to the freeway opening. Because of strict requirements of the State for honest and accurate reporting of gross sales, these sales tax data become very meaningful when they are compared with a control area or comparative base for the same periods. Any deviation in the trend lines of the two areas in the after period would denote an effect that may or may not be attributable to the freeway.

Retail Trade

In order to develop a more significant picture of the effects of an elevated freeway on the overall El Monte community, the combined gross sales of merchants on both "superseded" streets were analyzed under the following categories: (1) all businesses, (2) service stations, (3) cafes and bars, and (4) other businesses.

How well did the bypassed areas do in the year after freeway construction? *In all instances, retail business was significantly better than similar business in Los Angeles County.* The Valley Boulevard and Garvey Avenue "All Business" category registered a 7.43 per cent gain in gross retail sales after freeway opening while all business in the county was up approximately half as much, or 3.75 per cent.

For a clearer analysis of the 7.43 per cent increase, the "All Business" group was broken down into three categories: (1) service stations, (2) cafes and bars, and (3) other business (other than service stations, or cafes and bars).

Service Stations

Service stations on "superseded" highways are generally good indicators of the effects of a bypass since they are highly sensitive to traffic changes. According to the sales tax report, *the service stations of El Monte along superseded highways did 18.94 per cent more business in the after period as compared to the county's 8.87 per cent gain. This is even more significant when one considers that traffic along the two superseded highways had dropped 36 per cent whereas overall traffic within the County was up 8 per cent and up only slightly less for the State as a whole over the same period.*

There was no increase in the number of stations during the "after" period.

Cafes and Bars

The other highly sensitive traffic catering businesses, cafes and bars, could not be objectively compared with the county since, as noted previously, in the "before" period El Monte's trend was dissimilar to that in Los Angeles County. (Probably one of the principal reasons for the dissimilarity may be attributed to the fact that the bypassed cafes and bars are a poor sampling of the county's cafes and bars.) Whether El Monte's gain of 47.66 per cent is thus significant in the face of the county's gain of only 8.79 percent is a matter of conjecture. Perhaps the only significant statement that can be made pending further research is that the bypassed cafes and bars, as a group did better in the "after" period than in the "before" period.

Undoubtedly of significance, however, is the fact that three new cafes and bars opened up in the "after" period.

Other Businesses

Other business, the nonhighway caterers if you will, was up in the after period as well. This group showed a 5.63 per cent gain while similar businesses within the county were gaining only 3.07 per cent.

New Developments

Admittedly, a one-year study period is ofttimes insufficient to enable slower moving developments, attributable in whole or in part to the new freeway facility, to make themselves clearly evident. Thus an entirely complete survey of such elements of the overall picture is rarely possible. Occasionally, however, exceptional devel-

(Continued on page 41)

How Far Should We Go For Uniformity?

By William G. Galloway
(Assoc. Mem., ITE)
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Kentucky Department of Highways

This article has been adapted from an address at the Annual Meeting, Southern Section, Institute of Traffic Engineers, in Asheville, N. C., March 3, 1959.

THE QUESTION MARK at the end of the title of this article, I am convinced, has real significance. It is a fairly easy thing to conveniently ignore the question of how far should we go in striving for uniformity when we are in our own offices surrounded by friendly or sympathetic attitudes and when we are miles away from similar agencies. For some of us, the factor which causes us to realize that not everyone may necessarily share our own views on uniformity is the jangling telephone with an irate, outspoken, and always "expert" citizen on the other end. For others, our conviction that our own attitudes with regard to uniformity of traffic control are proper and are shared by all are exploded when we are asked to present our thoughts to a group of experts who are concerned with the same problems that we are. The question mark led me to the startling realization that my own views on traffic control uniformity might not be shared by all, and that there might logically be some bounds on how far we should go in striving for uniformity.

The problem of uniformity (or if you wish, non-uniformity) as I see it is created by certain causes which have both good and bad effects. I should like to dwell momentarily on the causes and some of the effects of this problem.

The Causes of the Uniformity Problem

In listing the causes of our uniformity question, I place at the top of the list our different road systems and the individual characteristics of each. Although we haven't yet had much experience with it, the Interstate System probably will introduce more new and different features than any highway or street facility that we now have in operation. These Interstate facilities will incorporate, of course, the latest and best thinking of planners, designers, traffic engineers, construction engineers and enforcement agencies. We anticipate that they will be used for sustained high speed and high volume traffic.

The next road system which has its own inherent differences are the state-maintained primary and secondary roads and streets. Generally, the obsolescence of this road and street system has necessitated the building of the Interstate System. City streets constitute another road system which exhibits characteristics that are different from either the Interstate System or the state-maintained primary and secondary systems. County roads and occasionally township facilities exhibit characteristics and experience usages which also are different from any of the foregoing systems.

Another basic cause of the uniformity question, apart from the different road systems, are the different users of these roads. These road users may include automobiles, trucks, pedestrians, trains, streetcars, and may even include stray dogs and cats. All of these road users have different and frequently conflicting demands for the use of these facilities. These differences are caused by such things as differences in individual trip purposes and speeds and differences in the type vehicle used. Naturally, with such a diverse group of road users we would assume that they would exhibit completely different physiological capabilities ranging from complete normalcy to severe abnormalcy in their ability to see, think, feel and hear.

The group of people responsible for the provision of the road systems also do their bit to cause the uniformity question. This group consists of county, city, state, and Federal planners and engineers, legislators (state and city), administrators, and others. Each individual in this group has his own idea about what kind of roads should be built because he is influenced to varying degrees by other considerations in our economy.

An additional group which adds its bit to the uniformity problem are the people whose task it is to referee the conflicting demands of the road users. I refer to the enforcement officials which may be state, city, or county police, county sheriffs, constables, and maybe others. Needless to say, each one of these groups (and sometimes each individual within the group) has a different set of enforcement policies.

The last groups which help in causing the uniformity question are the legislative and judiciary bodies. These groups constitute the initial and final arbiters between all of the foregoing agencies, individuals, and factors which are concerned directly or indirectly with our street and highway systems. The individuals which make up this final group are, of course, also subject to that human characteristic, the urge to be an individual. This results, of course, in different rules for the use of the road and in different penalties for the misuse of the road, depending upon the location of the road.

After having been pretty basic in the development of the causes of the uniformity question, I think it would be safe to summarize by saying that these causes, by their nature and abundance, are sufficient to create a problem of considerable magnitude for

those of us whose job it is to tell the motorists in understandable terms what they can and cannot do.

Notable Areas of Non-Uniformity

Signs — Probably one of the most notable areas in which we have been guilty of not providing the motorists with uniformly clear and understandable instructions is in the signing of our roads and streets. Consider for example, the confusion that must be created when a motorist is confronted first by a 35-mile per hour speed limit sign followed immediately by a curve sign with a 45-mile advisory speed statement underneath. This situation has arisen frequently in Kentucky even though both of the speed indications were in keeping with the recommendations of the Uniform Manual.

Some cases of sign misuse are even humorous. I recall seeing in one of our neighboring states, a sign mounted on a divided facility facing opposing traffic that read, "Stop—Turn Around —Go Back." In Kentucky we are still blessed by the existence of a few remaining "Burma-Shave"-type signs that were installed by one of our more courteous civic-minded engineers. These signs bear messages "Please Sound Horn When Passing" or "For Your Safety Please Stay in Line." We in Kentucky are quite conscientious in installing an advisory speed sign at each curve whose maximum safe speed is under 50 miles per hour. Many of our district traffic engineers feel that these signs are more accurate if the speed statement is determined by the "seat-of-the-pants" method. Unfortunately though, our district traffic engineers seem to have different posterior coefficients of friction as these advisory markers are occasionally five to ten miles too low or too high in some districts and right on the money in other districts.

Some areas of signing inconsistency are, I believe, most desirable. In urban areas I believe that we must recognize that our traffic signs must compete with large and frequently illuminated commerical signs and with multicolored building background. Normal signing practices for these conditions would, of course, result in over signing if applied in rural areas where there are no background problems and where there is little or no competition with commercial signs. Also I believe that the need for illuminated signs and variable message signs must be acknowledged in urban areas because of the frequent necessity for low beam headlight driving, and part time turn restrictions and lane usages. These factors are less frequently encountered in rural areas, however, and I do not believe that the use of signs of this type should be considered extensively for these areas.

Signals—Another area in which we may be guilty of confusing or misleading motorists is through our lack of uniformity in many aspects of signalization. Again in this area, there are many notable differences in urban and rural conditions which must be recognized for adequate signalization. Probably the most frequent inconsistency is in the number of signal indications that are provided and in the location of the signal heads. Very few other phases of driving seem more dangerous to me than traveling through a series of overhead signals that are followed immediately by a series of corner mounted signals. Frequently we tend to confuse motorists by doing such non-standard things as providing a double red indication in each signal head as is the case in one of our Kentucky cities. This is done, I am told, to reduce the possibility that bulb burnouts will eliminate the stop indication. In this same category, many of you may be familiar with the overlapping red and amber indications which are used to provide pedestrian intervals in some eastern cities.

The design of signal arrow indications has long given us problems in trying to determine whether the ITE arrow is superior to the ASA arrow. We normally arrive at the conclusion that neither is completely adequate.

Warrants for the installation of pedestrian signals and the colors of pedestrian indications are areas that have given us considerable degree of concern in Kentucky. Considerable inconsistency exists in the colors of the pedestrian signal indications, although this should improve now with the new standards.

The traffic volume warrants for signals presently recommended in the Uniform Manual have long appeared to us in Kentucky as being not particularly applicable for many of the new multi-lane facilities which we are constructing. Some time ago we completed a group of studies which indicated that strict adherence to the warrants recommended in the manual quite frequently allowed almost chaotic conditions to develop before the traffic volumes on these facilities were high enough to reach the warrant level. We found in these studies that considerably greater side street delays result at the volume levels warranting signals on multi-lane facilities than exist under these same volumes on two-lane facilities. We, therefore, are guilty of introducing some inconsistency in the installation for signals because we consider traffic signals warranted on four-lane facilities at volume levels lower than those required on two-lane facilities.

Finally in the broad area of signals, I believe that we have perhaps been guilty of introducing a great deal of confusion in the minds of motorists by our use of flashing beacons. Most of us probably have concluded that the warrants required by the Manual for the installation of flashing beacons are met at practically any major intersection in our jurisdiction, whether it be rural or urban. Most of us try to reserve this device for those locations having special hazards, but their effectiveness in these applications is undoubtedly reduced by the fact that we occasionally use these devices as a compromise measure when it appears that we will otherwise be required to install an unwarranted traffic signal.

Pavement Markings — Perhaps our most notable area of inconsistency is in our pavement marking work. I wonder why we, as traffic engineers, can't get together on the color of the barrier lines which we use for no-passing zones. Possibly this is due to the existence of purchasing agents, budget experts and paint dealers who appear to have their own peculiar set of ideas regarding pavement marking. I am more inclined to believe, however, that the fault lies somewhere within our ranks because our Uniform Manual allows options which themselves create a great deal of the trouble. Although color differences are considered in the Manual as a method of designating no-passing zones, it seems to me that the emphasis in the Manual is placed on the solid rather than broken character of the centerline to designate no-passing zones.

The question of uniformity in the marking of barrier lines or no-passing zones is further clouded by the diverse enforcement interpretations of the purpose of the barrier line itself. In Kentucky, both the State Police and the Traffic Engineering Division inter-

pret the meaning of these barrier lines as to prohibit passing or to prohibit vehicles from being driven to the left of these lines. In one of our cities, however, and this is the case frequently throughout the nation, the view taken by enforcement officials is that they are to preclude passing and that they should not be crossed over, even to enter private or commercial entrances or intersecting streets. Personally, I would prefer the adoption of uniformity in color rather than line characteristics (that is, solid rather than broken) to indicate that passing and crossing over is prohibited.

All of us are in a quandary as to what to do about edge lines. We already see inconsistencies in this area but these inconsistencies will no doubt be valuable in helping us determine through research where we should use what.

Perhaps the non-uniformities which we witness in pavement marking arrows are not of earth shaking significance, but this has long been one of my pet peeves. Some designs are good, others are bad, but all are inconsistent.

School Crossings — Another notable area of inconsistency is our school crossings protection. Although I personally believe the philosophy that we should encourage these school children to assume their own proper degree of safety responsibility, I do acknowledge that these problems are somewhat special, perhaps because they are loaded with emotional and sentimental dynamite.

Construction Projects—While thinking of special situations in which our traffic control exhibits a notable degree of inconsistency, I should mention briefly, construction and maintenance projects in both urban and rural areas. In these areas, the highest possible degree of uniformity in traffic control is mandatory because here, misunderstood directions can be most disastrous. We in Kentucky have recognized that in the past we have been contributing at least our share of inconsistencies in this area, and we are at the present time, developing a special signing and marking manual for construction and maintenance projects. We have attempted wherever possible to follow the recommended practices of the Uniform Manual so as to avoid the creation of inconsistencies between markings of this nature in Kentucky and in other states.

Regulations—So far I haven't spared the traffic engineering profession from criticism regarding the inconsistencies which we have created. This should give me license to say that in the field of traffic regulations, where others are perhaps more directly concerned than we as traffic engineers, inconsistencies too numerous to mention exist. As traffic engineers, however, we might consider a few of these inconsistencies which we are helpful in creating.

All of us recognize that even realistic speed zones, to be effective, must be enforced. Most of us use the 85 percentile speed as a guide in selecting a reasonable speed limit. I personally began to question the adequacy of flatly adopting this procedure while discussing the problem with enforcement officials whose different methods of enforcement varied from the pacing method to the use of radar or electrical timing devices and who allowed tolerances of zero to 15 or 20 miles per hour. In many of these instances, the effectiveness of our uniformally created speed zones was nullified by the method of enforcement.

The inconsistency between regulations regarding barrier lines has already been touched upon so I shall not elaborate at this point other than to say that uniform regulations regarding barrier lines would be most desirable.

In urban work, we find that many inconsistencies exist in regulations regarding stopping, parking, and loading restrictions. Sometimes you may be considered as parking when you go to pick up your dry cleaning and at other locations this action may be considered as loading and governed by a completely different set of rules. Since it would not be feasible for the traffic engineer to define those actions which at any particular location are considered as loading and which are considered as parking, I believe that problems of this nature can only be solved through uniform regulations.

Some Solutions to the Uniformity Problem

From the foregoing, it should be apparent that each of our traffic engineering functions and each of our family of traffic control devices may be listed as notable areas of inconsistency or non-uniformity. Realizing then that everything we as traffic engineers do can have harmful effects because of inconsistency or non-uniformity, we perhaps might consider what we should do to overcome these problems. At the top of this list I would place our need to sell the use of the Uniform Manual to those organizations who have an interest in traffic but who do not have traffic engineering services available. Similarly, I would place high on the list, our selling the adoption of Act V of the Uniform Vehicle Code and the Model Ordinance to governmental and enforcement agencies who are concerned with traffic. Also I believe that we cannot escape the need for even more coordination between the activities of our traffic engineering agencies and those agencies which are interested in the creation and enforcement of regulations. To eliminate those problems which we directly create as traffic engineers, I believe that we should constantly strive to improve the Uniform Manual through (1) the factual evaluation of new devices now in use, (2) increasing research into previously untried devices and methods and (3) extending the coverage of the Uniform Manual in such areas as signal warrants, particularly on multi-lane facilities and school crossings. I personally believe that we should give a great deal of consideration to revising the Uniform Manual in two separate directions. That is, creating a separate manual for urban and for rural conditions, as has been done by the American Association of State Highway Officials in their geometric design policies.

All of the foregoing comments add up in my mind to the fact that we have not yet gone far enough in striving for uniformity, as there remain many serious areas of non-uniformity and inconsistency in our work. If it were possible for me then to completely define these areas, I could say just how far we need to go in striving for uniformity, and my job with this subject would be completed. I have no such answers.

Although I do believe that we should go much further in striving toward uniformity in traffic control, I do think that there exists a definite danger in going too far. Perhaps this danger is best described by Emerson's words, "A foolish consistency is the hobgoblin of little minds." Therefore, I think that the best insurance that we have against going too far in striving for uniformity lies in our ability as engineers to guard against both little minds and foolish consistencies. I believe certainly that there is a correct balance between uniformity and non-uniformity of traffic control at all levels,

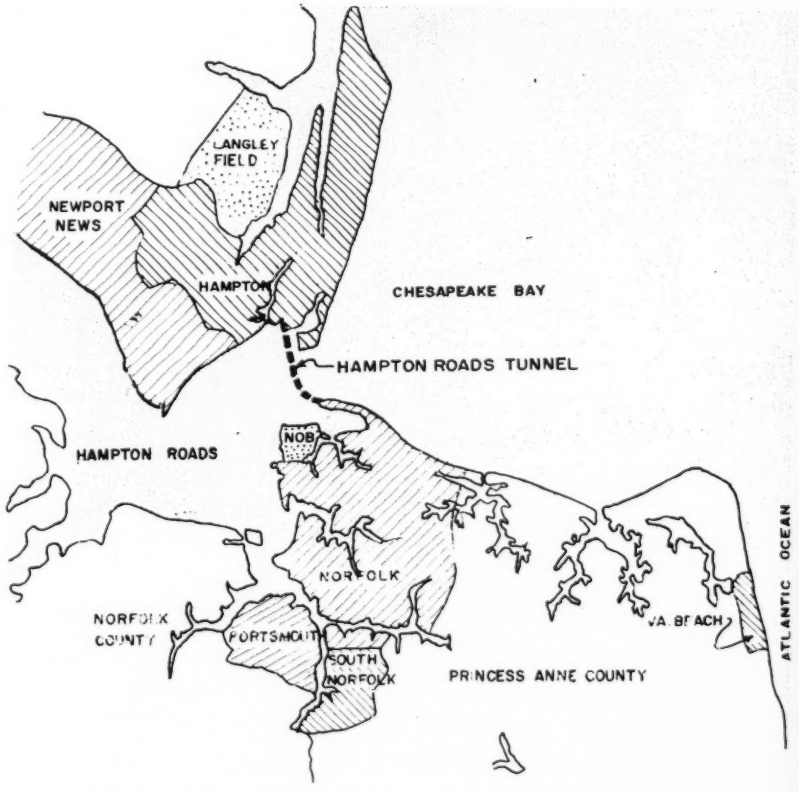
(Continued on page 44)

Tidewater Cities Break Their Shackles

by Fenton G. Jordan, Jr.
(Member, ITE)
Traffic Engineer
Norfolk, Virginia

"With this bridge-tunnel we have destroyed distance and conquered time."

THESE WERE THE sentiments of General James A. Anderson, then Chairman of the Virginia State Highway Commission at the opening of the $60,000,000 Hampton Roads Bridge-Tunnel project linking Norfolk and the lower peninsula cities of Hampton and Newport News, Virgina (Figure 1). The project, which consists of two bridges, two man-made islands, a tunnel and approach roads, (Figure 2), crosses over and under historic Hampton Roads near the site of the famous Civil War battle between the Merrimac (Css-Virginia) and the USS Monitor, and is an important break in the shackles of inadequate communications which have hindered the development of Tidewater, Virginia for years.



HAMPTON ROADS TUNNEL
LOCATION MAP
Figure I

History of the Project

Prior to the opening of the bridge-tunnel, the area had been served by ferries. This service was in existence at least 200 years, for according to records in Norfolk's Corporation Court, "Bartram Proby in 1739 came 18 miles and crossed a ferry from Hampton Towne to Norfolk Borough." When the ferries stopped running coincident with the tunnel opening, it was indeed the end of an historic era, but dreams of the new era just beginning date back at least 35 years.

In 1923 the first plan for a physical crossing of Hampton Roads was proposed. At the time it was probably considered a fantastic scheme and died in its early stages, but nevertheless, the seed from which this bridge-tunnel project grew was planted.

During World War II the Hampton Roads area was a beehive of military and shipbuilding activity and the need for a physical crossing became more and more apparent. The embers of earlier dreams were once again fanned into open flame.

In 1951 things began to happen and the first studies of crossing possibilities were made. Eight sites were selected, only three appeared feasible, and in the final analysis after much debate the location between Willoughby Beach (Norfolk) and Old Point Comfort (Hampton) was selected. Construction of the bridge-tunnel was begun in December 1954 and completed 35 months later on November 1, 1957.

Financing

Financing of the Hampton Roads Bridge-Tunnel project is an interesting study in itself. In 1940 the General Assembly of Virginia passed what is known as the "Revenue Bond Act"

Reprinted from "Municipal South."

which made it possible for the State to acquire existing toll facilities or build new facilities if financially feasible, through the sale of bonds. Studies of the Hampton Roads project were actually begun at that time but were halted by World War II.

The project did not die, however, and in 1948 the subject was re-opened by the Highway Commission carrying out the provisions of the 1940 Act. That year they purchased the ferries which operated over the same waters now served by the bridge-tunnel and in 1949 bought the nearby James River Bridge System and began construction of a bridge across the York River 20 miles to the north. For these projects a $19,000,000 bond issue was sold.

In 1950 the earlier Act was amended to include feasibility studies for a bridge, a tunnel or combination thereof across Hampton Roads. Since ferry tolls were pledged to the $19,000,000 Bond Act of 1940, and in view of the fact the bridge-tunnel would replace the ferries and would be in competition with the nearby James River Bridge System, it was necessary to include all of these projects in a one-for-all plan.

By 1954 cost estimates for the bridge-tunnel had risen to as much as $60,000,000 so the Highway Commission issued $95,000,000 worth of 40-year bonds to build the Hampton Roads Bridge-Tunnel, a Rappahannock River Bridge, and to refinance the bonds outstanding from 1949 which were used to pay for the York River Bridge, the James River Bridge System, and the Hampton Roads ferries.

Construction Begins

The Hampton Roads project officially began in 1954 when the consulting engineering firm of Parsons, Brinkerhoff, Hall and MacDonald was retained to prepare cost estimates and plans; but it was not until a bleak and cold day in December of 1954 that the first spade of earth was turned and Merritt, Chapman and Scott began work on the two artificial islands which form the portals of the tunnel under Hampton Roads.

In order to obtain a comprehensive picture of the entire project, let us take an imaginary helicopter journey over the route. The Norfolk approach system actually begins five and one quarter miles from the bridge-tunnel and generally follows widened and improved existing roads. However, as it nears the Ocean View section of Norfolk the approach road is a depressed expressway (Figure 3) for approximately nine-tenths of a mile with grade separations at the cross streets. As we leave the depressed highway the route again joins an existing and improved street along Willoughby Spit, a long curving tongue of sand forming the south shore of Chesapeake Bay. At the end of the Spit the highway takes off on a sweeping curve northward over an open trestle 30 feet wide and 6,150 feet long terminating at the south man-made island which forms one portal of the tunnel. Since this portion of Hampton Roads is rather shallow, a trestle approximately 14 feet above the highest tide ever known is all that is necessary to furnish sufficient clearance for the small craft which frequent these waters.

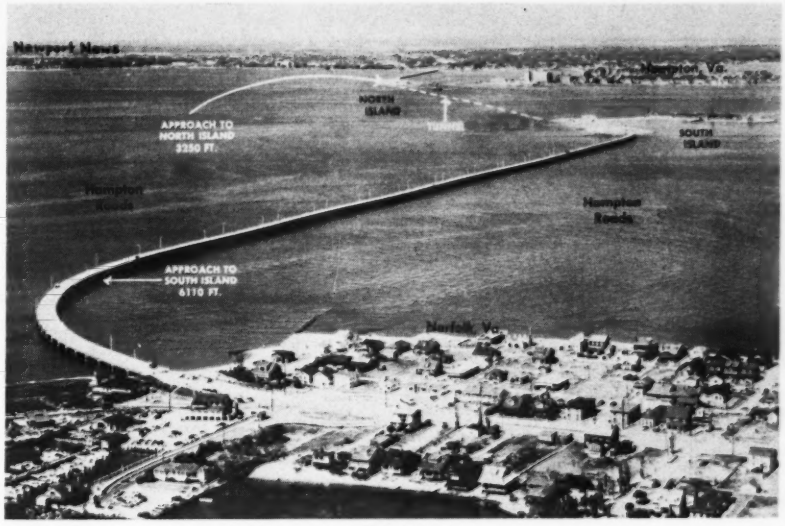


Figure 2
Aerial view of Hampton Roads Bridge Tunnel between Norfolk, Hampton and Newport News, Va.

The 8,674 foot tunnel (Figure 4), 2nd longest trench-type vehicular tunnel in the world, begins at the southern island, passes under the main ship channel of Hampton Roads and comes back to grade at another man-made island on the north side of the channel. It was formed by sinking 300-foot steel concrete tubes into a trench which had

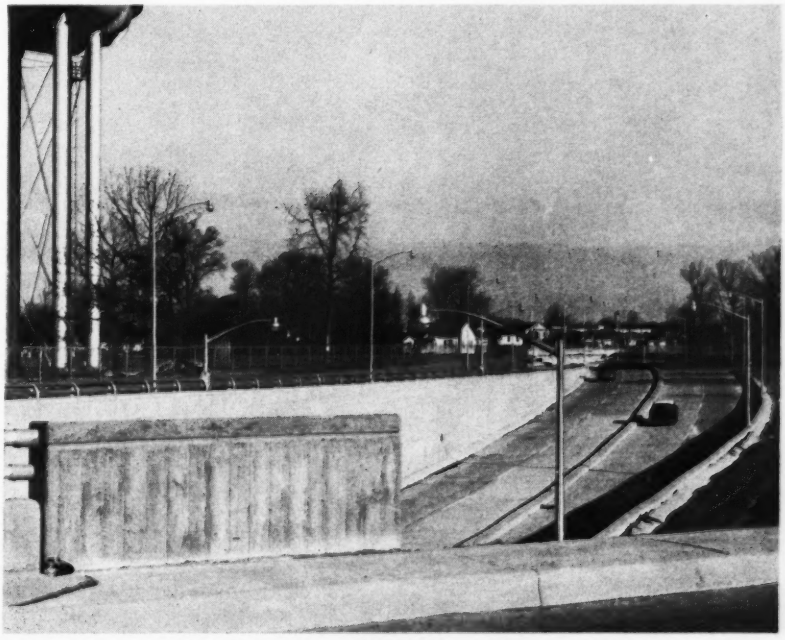


Figure 3
View of the expressway in Norfolk — a part of the Hampton Roads project.

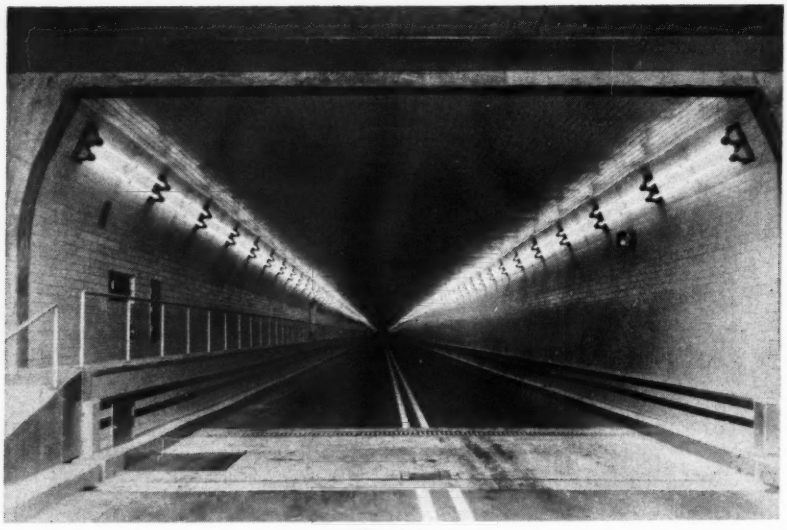


Figure 4
Interior view of tunnel showing tile and fluorescent lighting.

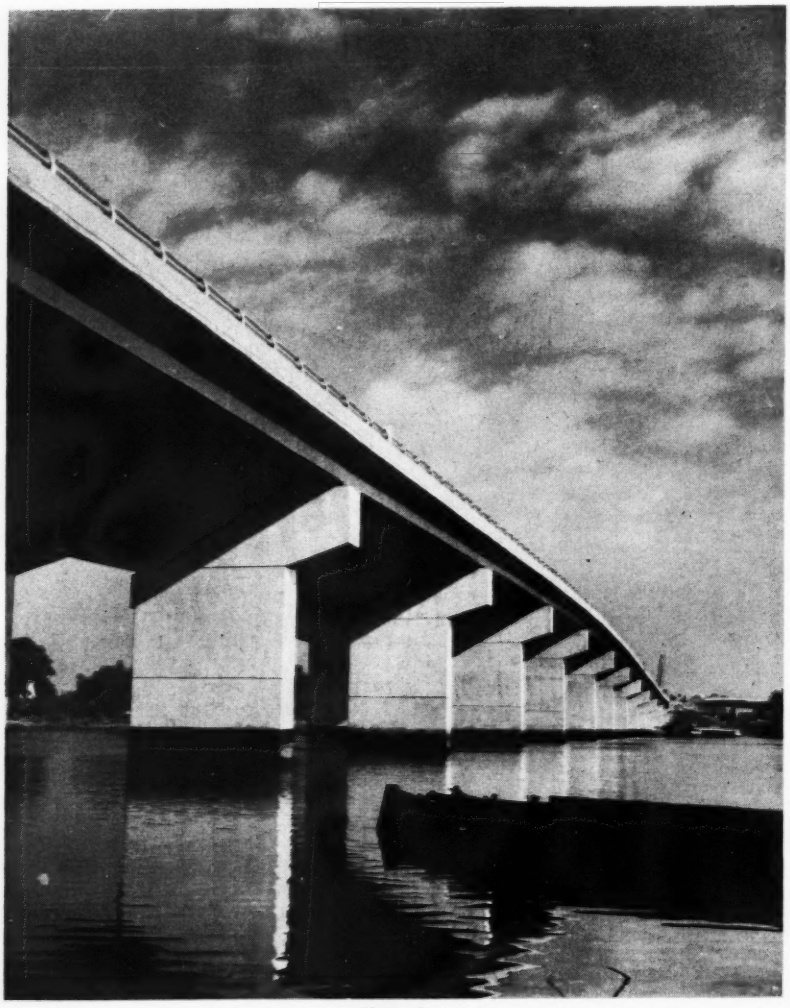


Figure 5
View of the north bridge of Hampton Roads.
—Photo by Bill Bonsor, Times-Herald

been dredged between the two islands. The diameter of the tube is 30 feet and the actual width of the roadway is 23 feet. It is interesting to note that at the lowest point a motorist in the tunnel is 101 feet below sea level. The interior is tiled with two million white tiles and is lighted with a single continuous line of fluorescent tubing, on each side, reinforced with a second line of tubing near each portal. The double tubing is used to furnish additional light and minimize the change caused by passing from full daylight into the tunnel and visa versa.

Although the portals are well above the highest tide ever recorded in Hampton Roads, the engineers took no chance of the tunnel becoming flooded and provided watertight gates at each end for emergency use. There are ventilating towers on each island capable of circulating a total of 3,400,000 cubic feet of air per minute to furnish a complete change of air in the tunnel every 90 seconds.

The North island is also connected to the mainland by an open trestle 3,250 feet in length and 30 feet wide (Figure 5). This bridge terminates in the city of Hampton and on this side of the Roads the approach highway is of the controlled access type consisting of a divided highway with 23 overpasses and eight underpasses, which will carry the traffic between the tunnel and Route 168, the principal highway between Richmond and Norfolk.

Economic Value of Facility to Communities

The Hampton Roads Bridge-Tunnel is probably the most significant transportation development which has ever occurred in the Tidewater, Virginia area. The average daily ferry traffic in the last year of operation was 4,000 vehicles. In the first year of operation the ADT in the tunnel was 6,000 and rose to 6,400 in 1958 and will increase further in 1959.

The economic benefits which will accrue from the bridge-tunnel are many and varied. It will expand the trading and distribution areas of the Tidewater, Virginia cities. It will shorten the travel time between Norfolk and the principal eastern industrial areas and the convenience of the direct physical connection will undoubtedly benefit from the tourist attractions of the Tidewater beaches, historical sites and military installations.

(Continued on page 44)

Traffic News

Planners Issue Special Edition on Land Use and Transportation Planning

The newest techniques in the field of land use and transportation planning are explained in the May issue of the Journal of the American Institute of Planners. Eight contributing authors, experts in city and traffic planning, describe certain planning situations in which they have used the latest techniques effectively.

Journal authors, who in recent months have been further refining these planning techniques, outline their conclusions regarding the influence of land use on transportation patterns and the reciprocal effect of transportation facilities on land use and traffic patterns. Others discuss revolutionary methods of forecasting traffic and land use patterns. All the procedures as presented in the Journal have been tested on a practical basis.

The new techniques are based on the theory that cities display similar characteristics, and that there is a striking regularity in urban growth and form. Pioneering researchers in city and traffic planning believe that personal travel habits are predictable, and that mathematical formulas can be developed to express travel behavior and to forecast land use patterns. Recent urban studies in which new mathematical techniques were utilized affirm this conclusion.

Coordinating editor of the AIP Journal, Alan M. Voorhees, traffic planning engineer of the Automotive Safety Foundation, believes "the information in the special edition makes it clear to the planner that traffic is predictable, and will afford him a more intimate understanding of spatial relationships within the metropolitan area. It is also clear that the time is close at hand when we will be able to describe urban growth in a general theory."

On the basis of extensive field tests, some completed and some in progress, the new traffic forecasting techniques hold the promise of saving U. S. cities millions of dollars in road and street construction costs and of giving motorists vastly improved traffic service.

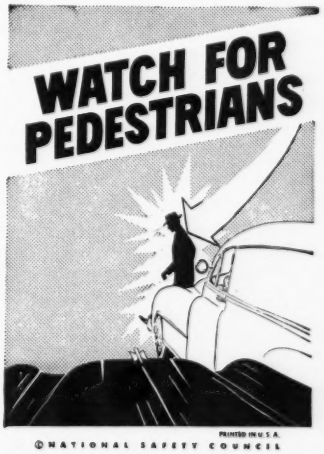
According to Mr. Voorhees, the new traffic forecasting technique already has produced substantial savings to several cities. In communities where the techniques were tried out, it was possible to relocate a number of proposed highways through sections where right-of-way costs were lower and where better ultimate traffic service would be provided.

Extensive research by the Bureau of Public Roads, state highway departments, city planning agencies and the Automotive Safety Foundation preceded development and perfection of the new traffic forecasting techniques. This research disclosed that all cities have enough similar characteristics in their patterns of growth to make it possible to predict the ways that traffic will develop. Mathematical formulas, based on the known relationships between land use and traffic generation, are the key to the new system.

Use of these recently-devised formulas makes it possible to feed factual data, collected in any given city, into an electronic computer and obtain an accurate forecast of future traffic patterns.

The formula-computer method for the first time gives cities a fast and economical way of getting advance knowledge of the origins and destinations of traffic that will develop in coming years. This makes it possible to select street and highway locations in anticipaiton of future requirements and will eliminate the need for costly relocations at a later date.

Voorhees said that larger cities stand to gain particularly from application of these new techniques since they make it possible to accurately project the highway needs of an entire metropolitan area. Thus there can be proper coordination of road and street development in both the city and its suburbs. Lack of such coordination has been a major handicap to orderly highway development up to the present time.



Tribute Paid to Memory Of T. H. MacDonald By Senator Johnson

Sentator Lyndon Johnson (Texas) paid tribute to the memory of Thomas H. MacDonald, former Commissioner of Public Roads, in a statement before the U. S. Senate on April 7. Senator Johnson was speaking on the second anniversary of Mr. MacDonald's death, and in special reference to the memorial fund now being raised to endow a chair in transportation at Texas A. and M. College.

Senator Johnson spoke as follows:

"Mr. President, today, April 7, marks the second anniversary of the death of Thomas H. MacDonald, for 34 years the Chief of our Bureau of Public Roads, and the architect of our cooperative Federal-State highway system.

As a living, growing memorial to the work of this great public servant, his friends are raising funds to establish a chair in transportation at Texas A. & M. College to help carry on the fine work which he began there in the last years of his life.

When Tom MacDonald became head of our Federal highway program, there was no national system of highways in this country. There were only 6 million motor vehicles and only 12.5 miles of road had been built in the United States with the first Federal-aid funds.

Serving under 7 presidents and 17 congresses, Tom MacDonald was the guiding genius behind the development of the world's greatest system of highways, which now carries 67,500,000 vehicles to the remotest corners of our land.

Alongside this great contribution to our Nation's physical and economic growth ranks his new philosophy of transportation, which may be of even greater importance in its long-range effects upon the future of our land.

With a rare perspective, born of his unique association with the development of our highway system, Tom MacDonald saw the need for men to study and understand the true nature of transportation in all its facets, how these facets are related to and dependent upon each other, and the impact of transportation upon our national well-being.

This realization sparked his plans for a new type of transportation research institute, and he lived to lay

out the fundamental pattern for basic research into the economic and social aspects of the entire transportation field.

The finest tribute that can be paid to this man, who gave so much to making possible our way of life as we know it today, is to see that his dream is brought to reality. The MacDonald chair of transportation will truly symbolize in its public service the great public servant for whom it is named."

Northwestern University Combines Traffic Institute And Transport Center

The Traffic Institute of Northwestern University will be joined administratively with the Transportation Center at Northwestern, it has been announced by President J. Roscoe Miller. Heretofore the two organizations have been separate administrative units within the University in Evanston, Ill.

Franklin M. Kreml, director of the Transportation Center, will direct the combined operation. The Traffic Institute will now become a division of the Transportation Center, retaining its own director and maintaining its present program.

In commenting upon this action, Dr. Miller said, in part, "When it was established, we assumed that the Center — established to work in all modes of transport—would become the focus for University activity in the transport field. It is, therefore, appropriate that the Traffic Institute become a division of the Center.

"The program and the identity of the Institute, will, of course, be maintained—in fact, its program will grow and broaden more rapidly. The objectives and program of the Transportation Center remain unchanged and will, we believe, be earlier achieved as a result of this action."

Kreml, founder of the Traffic Institute and Traffic Division of the International Association of Chiefs of Police in 1936, became the first director of the Transportation Center in 1956. For a year prior to that time he was acting director of the Center, engaged in organizing that program.

The Transportation Center offers a broad program of graduate and undergraduate training aimed at solving major problems in the highway, rail, air, pipeline, and water divisions of the nation's transportation industry. Research and consultative services also are part of the Center's program.

The Traffic Institute functions in the street and highway traffic field. Originally a police traffic training school, it has expanded its activities to include courses for virtually all types of traffic safety personnel, research and development work, publications, and field service assistance to local and state governments.

"Under this administrative arrangement," said Kreml, "I am certain that the Institute and Center programs will grow both in depth and scope. This seems inevitable in light of our greater joint capacity, increased flexibility, and broader range of talents, the latter resulting from the bringing together of two staffs, each of which is preeminent in its field.

"The integrity of each program will be maintained. Funds will not be comingled; program staffs will be integrated, but not merged."

Sagamore Conference Report Published Copies Available

A report has been published on the very valuable meeting held last October to discuss highways and urban development. The meeting, popularly known as the Sagamore Conference, was the National Conference on Highway and Urban Development, held at Syracuse University Sagamore Conference Center, Raquette Lake, New York, October 5-9, 1958. More than 50 federal and state highway officials, mayors and other city administrators, housing officials, and civic leaders discussed plans for coordinated action to obtain maximum benefits for urban communities from the expanded U. S. roadbuilding program.

The Conference was sponsored by the Committee on Urban Research of the Highway Research Board, National Academy of Sciences — National Research Council; the American Municipal Association — American Association of State Highway Officials Joint Committee; and Syracuse University. Funds were provided by the Automotive Safety Foundation.

Additional copies of this report may be obtained at 50 cents each in quantity lots from the Automotive Safety Foundation, 200 Ring Building, Washington 6, D. C.

Western Section Plans July Meeting in Seattle, Washington

The annual meeting of the Western Section of the Institute of Traffic Engineers has been set for July 29, 30 and 31, at the Benjamin Franklin Hotel, Seattle, Washington. This date follows immediately after the annual national meeting of the American Institute of Planners in the same city, and immediately precedes the famous Seattle Seafair week, which will see the running of the Gold Cup hydro race.

The meeting will be keynoted by President Matthew C. Sielski, and will include sessions on urban transportation system planning, research in traffic and transportation, and a review of new traffic engineering developments in the area.

Field trips, both business and pleasure, will make the event a memorable one for those in attendance. General Chairman is Bruce Culver of the Seattle Engineering Department, with the technical phases being handled by Roy Sawhill of the University of Washington.

Coming Events

June 17-20 — NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS—
Annual Meeting, Commodore Hotel, New York, N. Y. Contact: NSPE, 2029 K Street NW, Washington 6, D.C.

August 2-5—MUNICIPAL WORKSHOP ON PARKING —
Sponsored by Parking Committee, American Municipal Association. Carter Hotel, Cleveland. Contact: Robert J. Kelly, 1404 E. 9th St., Cleveland 14, Ohio.

September 7-11—ILLUMINATING ENGINEERING SOCIETY—
National Technical Conference, Hotels Fairmont and Mark Hopkins, San Francisco, California. Contact: IES, 1860 Broadway, New York, N. Y.

September 14-17 — INSTITUTE OF TRAFFIC ENGINEERS —
29th Annual Meeting, Commodore Hotel, New York, N. Y. Contact: ITE, 2029 K St. N.W., Washington 6, D. C.

September 20-24 — AMERICAN TRANSIT ASSOCIATION—
Annual Meeting, Hotel Leamington, Minneapolis, Minn. Contact: ATA, 355 Lexington Avenue, New York 17, N. Y.

October 11-16 — AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS—
Annual Meeting, Hotel Statler-Hilton, Boston, Massachusetts. Contact: AASHO, 917 National Press Bldg., Washington 4, D.C.

October 19-22 — INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION—
Annual Conference, Stardust Hotel, Las Vegas, Nevada. Contact: IMSA, 130 West 42nd St., New York 36, N. Y.

Where Modern Traffic Control and Safety Begin

. . with reflective color that works night and day

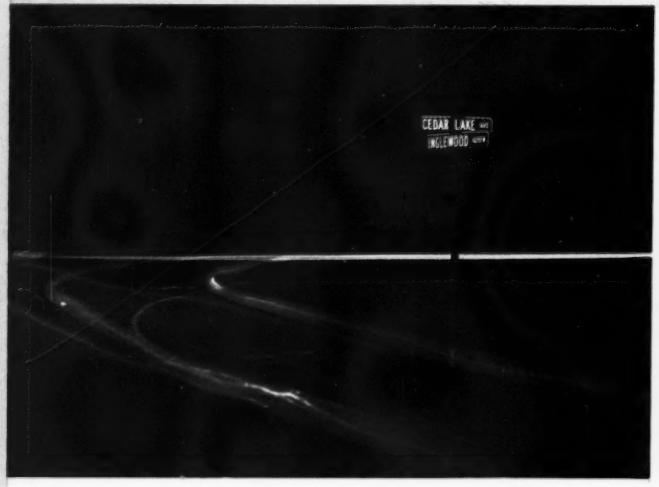
How to improve traffic flow; mak dr
hours, in all weather, on all roads, ig
How reflective color can work for you

You get vital visibility with signs of "SCOTCHLITE" REFLECTIVE SHEETING

They warn, regulate and guide with the same distinctive shape, vivid color and clear legend, 24 hours a day. Such signs are instantly seen and understood because they employ a logical 4-color system.

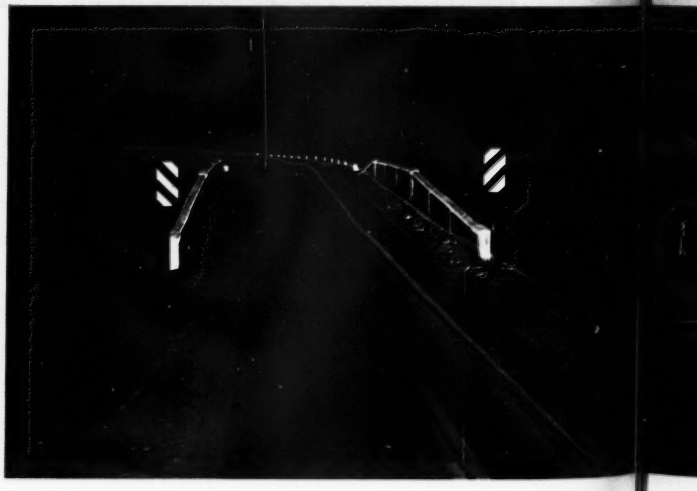
You get all-weather performance with signs of "SCOTCHLITE" REFLECTIVE SHEETING

Even when completely wet they won't "black out." A clear plastic shield seals out moisture, protects reflective elements from distortion. The heaviest rain can't appreciably affect brightness.



Street name signs of "SCOTCHLITE" REFLECTIVE SHEETING **leap to life at night**

Drivers see where they are at a glance, and in time to signal and turn. No more slowing of traffic, dangerous, sudden stops or quick turns. Street names will be brightly, conveniently visible 24 hours a day.



Road hazards painted with "CODIT" LIQUID **are white by day, bright by night**

Sprays or brushes on smooth or porous surfaces. Provides wide-angle reflectivity. Covers at less than 17¢ per sq. ft. Shows driver length and angle of curves; marks bridges, viaducts, and similar hazards.

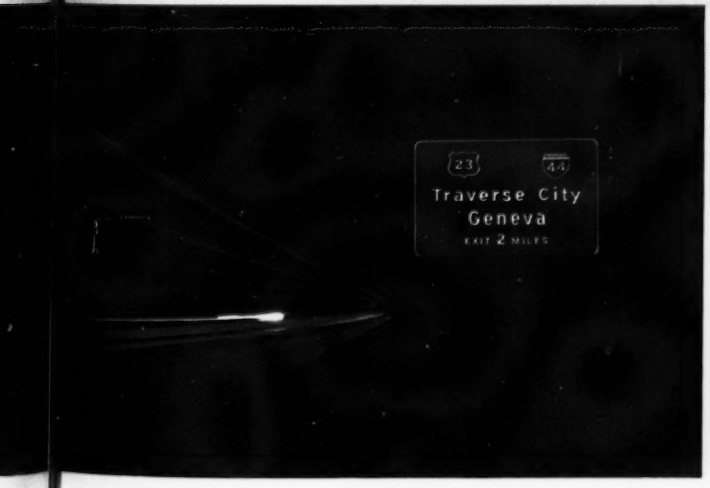
ak driving safer, easier at all ds, highways and streets. for you:

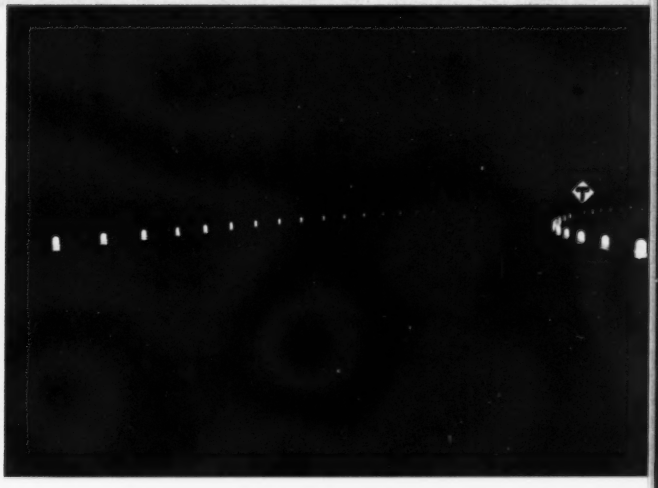
You get wide-angle reflection with signs of "SCOTCHLITE" REFLECTIVE SHEETING

Always brightly visible from practically all angles of approach . . . you can locate each sign for most effective traffic control. All signs will continue to communicate even when bent or twisted.

You get greater economy with signs of "SCOTCHLITE" REFLECTIVE SHEETING

They offer a long useful life and require minimum maintenance. Sign faces are completely smooth and flat so they resist effects of weather and dirt accumulation. Dust washes away in rain.





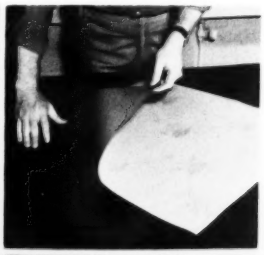
Completely reflectorized guide signs speed highway traffic at all hours

Bright "3M Signal" Letters provide complete, continuous legibility night and day. Against brilliant backgrounds of green "Scotchlite" Sheeting they offer the utmost in visibility and clarity.

Wide-angle delineators define and safely highlight the road ahead

There's a type for every delineation job—"wrap-around", "rigid" or "3M Signal" units that employ "Scotchlite" Sheeting, and "Codit" Reflective Liquid offer flexible, effective delineation at low cost.

You can make perfect, durable, reflectorized signs in your own shop in minutes at low, low cost

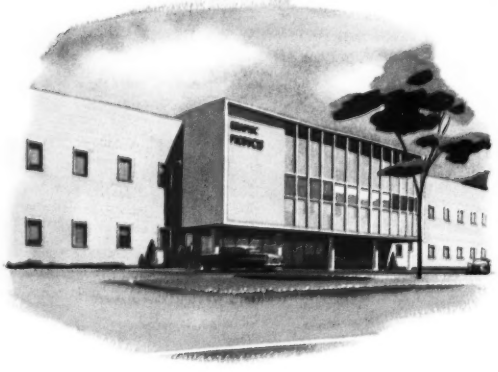


It's as simple as this. First, remove paper backing from ready-to-mount face of "Scotchlite" Reflective Sheeting. Anyone can do it easily.

Next, position prepared sign face on blank. You can use existing signs or new metal. Sign faces meet all BPR standards.

Your own automatic vacuum applicator is the key to fast, economical production (and they're available in a variety of sizes to meet all needs). When faces and blanks have been prepared as indicated in small photos, simply place in applicator and start. In minutes you'll have new reflectorized signs. The cost? As little as $3.60 each when you use your old sign blanks. And you can use your applicator to make street name signs, markers and other safety and guidance devices.

And the signs you make will last and last. Individual materials, finished faces, complete signs, all have been subjected to every type of laboratory and field test. The "weather tester" at right, for example, duplicates all of the conditions under which a traffic sign may have to function. Your signs will be brightly, colorfully visible at all hours, in all weather for years. Why not write today for complete information?



Constant testing, continuous research is carried on in the 3M Company's new Graphic Products Laboratory. From such research has come these products to make highways, roads and streets safer: "Scotchlite" Reflective Sheeting, "Codit" Reflective Liquid, "Centerlite" Reflective Compound and "3M Signal" Letters and Delineators.

MINNESOTA MINING AND MANUFACTURING COMPANY

. . . WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY

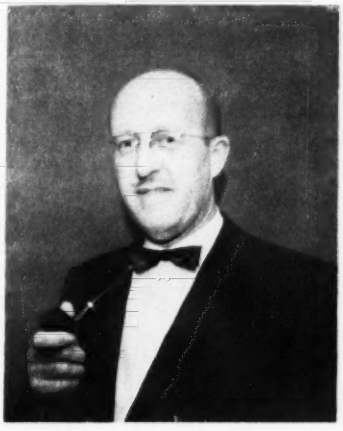
St. Paul 6, Minnesota

The terms "Scotchlite", "Codit" and "Centerlite" are registered trademarks of Minnesota Mining and Manufacturing Company

New Appointments

Ricker Leaves Jersey Turnpike for Pa. Highway Position

Edmund R. Ricker (Mem., ITE) has been named chief traffic engineer of the Pennsylvania Department of Highways, reporting to W. R. Froelich, chief deputy secretary and chief engineer of the Department. In his



new position, Ricker will have as one of his first tasks the complete reorganization of the traffic engineering function in the Pennsylvania Department.

Ricker was traffic engineer of the New Jersey Turnpike from 1950 to April, 1959. In this position he had the opportunity to improve traffic operations on the Turnpike to a point at which the fatality rate for the last three years has been below 2½ deaths per 100,000,000 vehicle miles.

Prior to working with the Turnpike, Ricker served two years as traffic engineer in New Haven, taught at the Yale Bureau of Highway Traffic, and spent five years with the Army Engineer Board in research. Earlier he worked for the Vermont Highway Department in construction and traffic engineering.

A graduate of the University of Vermont and the Yale Bureau of Highway Traffic, Ricker is a registered professional engineer and a member of the American Society of Civil Engineers. He is the author of a book on the traffic design of parking garages, and has been active in the field of parking for a number of years.

Allen Named to Manage New Arizona Safety Organization

Robert J. Allen (Mem., ITE), has been appointed manager of the newly formed Arizona Traffic Safety Foundation, with headquarters in Phoenix. The new organization will have responsibility for developing public support for traffic safety efforts in Arizona at all levels of operation, and will of necessity work closely with traffic engineers and other public officials.

Allen has been connected with the Association of Casualty and Surety Companies since 1948, first as traffic engineer and since 1956 as assistant manager of the Accident Prevention Department. In this latter capacity he has had responsibility for the development and supervision of the traffic program of the Association, including publications, national committee activity, and consultation services for cities and states.

A graduate of the University of Illinois in civil engineering, Allen did graduate work there under Professor Wiley and obtained an M. S. the following year.

Allen is currently serving as secretary of the Editorial Board developing the third edition of the *Traffic Engineering Handbook*, a post he filled also for the second edition. Until the Handbook load became too heavy, he also served as secretary of the Technical Council of the Institute of Traffic Engineers.

Bartels Appointed Traffic Planning Engineer in White Plains

William J. Bartels (Jun. Mem., ITE) has been appointed traffic planning engineer in White Plains, New York.

Since 1952, a traffic engineer on the staff of the New Jersey Bureau of Traffic Safety, Bartels had earlier experience with construction firms. He is a graduate in civil engineering from Cornell University.

Job Changes

Suat Basaran—formerly employed in Ankara, Turkey; is now Design Engineer for the Public Works Department in Dallas, Texas.

Robert W. Crommelin — now Traffic Engineer at Hayward, California; was Traffic Engineer of San Leandro, California.

John F. Green—is now a partner in the firm of Tarlton-Green, Engineering Consultants, Danbury, Connecticut; was formerly Engineer for the City of Danbury.

Jay W. Quinn, Jr.—was the Director of the Traffic Engineering Division of Traffic & Planning Associates in Hickory, North Carolina; is now Traffic Engineer in the South Carolina State Highway Department at Columbia.

Billy Rose — from the Massachusetts Institute of Technology at Cambridge to the North Carolina State Highway Commission as Highway Planning Engineer.

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USE

New Chesterman Metallic Tapes

For TRAFFIC ENGINEERS

- Non Rusting
- No cracking — no breaking off
- Solid leather case
- Brass fittings
- Plastic coated — moisture proof
- Sizes — 50 — 100 — 200 feet
- Refills available — saves money

Try at our expense; write asking to ship one or two for your approval and inspection. Return if not satisfactory. Prices furnished upon request.

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Title Changes

A. J. Basile—is now Engineer of Traffic Services for the Kansas State Highway Commission in Topeka; was the Traffic Control Engineer.

Bernard C. Hartung—was the Manager of Public Relations for the National Lumber Manufacturers Association in Washington, D. C.; is now Director of Member Relations for the Association.

William J. Hayne — is Chief Traffic Analyst of the Minnesota Highway Department in St. Paul; previously was Traffic Analyst in the Department.

Arnold A. Johnson—formerly Senior Highway Design Engineer in the Arizona Highway Department in Phoenix; is now Assistant Traffic Civil Engineer for the Department.

Sven Kansman—in addition to his duties as Traffic Engineer for Rader & Associates in Miami, Florida, is also Chief of the Civil Engineering and the Land Planning Departments of the firm.

Charles J. Keese — is Professor of Highway & Traffic Engineering in the Civil Engineering Department of Texas A & M College; former title was Associate Professor.

Edward S. Olcott — from the position of Executive Assistant to the Director of Port Development to that of Assistant Chief of the Planning Division in the same department of the Port of New York Authority in New York City.

James S. Saylor — was Senior Traffic Engineer in the Department of Traffic Control of Dallas; is now Assistant Director of the Department.

Edward G. Wetzel — formerly Assistant Chief of the Planning Division, Port of New York Authority in New York City; is now a Special Assistant to the Director of the Port Development Department.

New Publications

Studies In Highway Administration

Bulletin 200, Highway Research Board, National Research Council, 2101 Constitution Avenue, Washington 25, D. C. 1958. 50 pp. $1.00.

This bulletin contains seven papers on highway administration at the state, county, and local levels, as presented at the 37th Annual Meeting of the Highway Research Board.

The following papers are included:

"Principles of Delegation of Authority and Responsibility in a Highway Department," by K. L. Bergstralh.

"Decentralization in Highway Administration," by W. L. Haas.

"Wisconsin's Education and Training for Highway Construction Engineering Aides or Technicians," by C. L. Greiber.

"A program for Development and Research in Local Rural Highway Administration," by John E. Stoner.

"A Study of Human Relationships in County Road Administration," by Keith F. Jones.

"Effect of the New Interstate System on Intergovernmental Relations in Kansas," by Clarence J. Hein.

"Considerations and Methods for Developing Metropolitan Area Transportation Studies," by T. J. Owens.

The Federal Role In Highway Safety

House Document No. 93, 86th Congress, 1st Session. Superintendent of Documents, Government Printing Office, Washington 25, D.C. 1959. 232 pp. $0.60.

"The Federal Role in Highway Safety," submitted to the Congress by Secretary of Commerce Lewis L. Strauss on February 27, 1959, has been printed as House Document No. 93, 86th Congress, 1st Session. The study was undertaken and the report prepared by the Bureau of Public Roads as required by Section 117 of the Federal-Aid Highway Act of 1956.

In its opening statement the report summarizes findings of the study and recommends actions that can be taken by the Federal Government to promote highway safety. Chapter I provides a general statement of the problem, which is placed in its setting in Chapter II. Chapter III reviews the highway transportation system—the driver, the vehicle, and the highway—as related to safety. Chapter IV evaluates current highway safety activites, and Chapter V discusses the nature of an adequate safety program. Five appendixes describe special studies made for this report.

Night Legibility Distances of Highway Signs

By Terrence M. Allen. Reprint 23, Virginia Council of Highway Investigation and Research, University of Virginia, Charlottesville, Virginia. 1959. 8 pp.

This paper, reprinted from Bulletin 191 of the Highway Research Board, reports an investigation made in Virginia to correlate laboratory and field investigations of the visibility of roadside and overhead signs. Examined were various size letters, reflectorized or illuminated, and with various types of reflectorization.

Positions Available

HAMILTON, ONTARIO

Position: Assistant Traffic Engineer. Analysis of field data on traffic volumes, capacity, pedestrians, accidents; signal timing; preparation of designs for physical improvements; other duties.

Requirements: Graduate civil engineer and member of, or eligible for, the Association of Professional Engineers of Ontario. Should have a minimum of two years of experience in traffic engineering. Additional educational qualifications may be considered in lieu of experience.

Salary: Starting salary commensurate with experience and training.

Apply: Reply by letter, stating all particulars including age, experience and training to Director of Personnel, City Hall, Hamilton, Ontario, Canada.

TORONTO, ONTARIO

Position: Assistant Traffic Engineer. General administrative and technical duties for transportation analysis and geometric design division of Metropolitan Toronto Planning Board.

Requirements: Graduate engineer with some experience in traffic engineering preferred.

Salary: $6175 to $7154 with fringe benefits.

Apply: R. J. Desjardins, Director of Transportation Division, Metropolitan Toronto Planning Board, 133 Richmond St. West, Toronto, Ontario.

MONTGOMERY COUNTY, MD.

Position: Chief, Traffic Engineering Division, in metropolitan county adjoining Washington, D.C.

Requirements: Graduate work in traffic engineering plus two years of TE experience, or equivalent.

Salary: Range, $8459 to $10,293. Starting salary may be above the minimum if qualifications justify.

Apply: Personnel Office, Montgomery County Office Building, Rockville, Maryland.

NEW JERSEY TURNPIKE

Position: Assistant Traffic Engineer.

Requirements: BS in engineering, with graduate work in traffic engineering. Some experience preferred, but not essential.

Salary: $6500 to $7500.

Apply: New Jersey Turnpike Authority, Personnel Department, New Brunswick, New Jersey.

(Continued on page 56)

Strictly Business

Barney Named Sales Manager by Pfaff & Kendall

Pfaff & Kendall, Newark, N. J., manufacturers of street and highway lighting standards and traffic signal and sign supports and spans, has announced the appointment of Mr. Tom Barney to the position of General Sales Manager. Mr. Barney will be in complete charge of all sales functions of Pfaff & Kendall, including the lighting and traffic divisions as well as the special products division.

To this new position Mr. Barney brings a wealth of managerial experience. With Westinghouse Electric Supply Co. in varying capacities for the past twenty-two years, he has an extensive range of experience in the distribution of electrical equipment. His most recent assignment for Westinghouse was District Manager covering Texas and New Mexico.

Kerrigan Offers Attractive New Lighting Standard Catalog

Kerrigan Iron Works, P. O. Box 479, Nashville 2, Tennessee has just released a new catalog of lighting standards. Tabbed for easy reference, the catalog is divided into two sections — steel and aluminum. Copies are available upon request.

Also available from the Kerrigan company is a Steel Strain Pole catalog. This publication, which has considerable engineering data on strain poles, is a valuable reference for traffic engineers and others who buy or specify supports for traffic signals.

Automatic Parking System Installed in NYC Parking Lot

A new 1150-car municipal parking field where a toss of 35 cents into the basket opens the toll gate and a flashing yellow light and tell-tale alarm put the finger on violators was recently opened to the public in New York City's borough of Queens.

The automatic parking system, largest facility in New York City's municipal parking system, was designed and manufactured by Taller & Cooper, Inc., Brooklyn, N. Y., a subsidiary of American Electronics, Inc. A block and one-half away from the subway, the new off-street parking field puts Long Island commuters and shoppers only 26 minutes from Times Square.

The new $1,160,000 Rego Park Municipal Parking Field is the ninth self-liquidating facility built under the Department of Traffic's $94,000,000 program to provide 40,000 off-street parking spaces within six years. In addition, it represents the City's first lot equipped with electromechanical controls and counters for efficient, automatic control of parking using a minimum number of personnel.

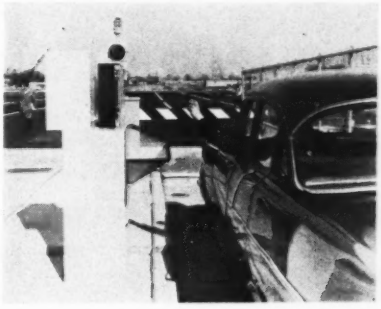
One section of the parking field, intended to serve motorists parking on an hourly basis, has meter-equipped spaces for 290 cars. Rates are 10 cents an hour or 35 cents for twelve hours. A larger area, with spaces for 860 cars, takes care of all-day parking. Here there is a flat charge of 35 cents for twelve hours or less.

The toll-collecting area for the larger field consists of three lanes. The lanes may be arranged to permit entry or exit as traffic conditions require.

Treadle-activated counters record cars entering and leaving the field. The same treadles activate the semaphore-type barrier gates. Integrated with the treadle system at the "exact change" entrance is a Taller & Cooper "Toll-O-Mat" automatic toll collector cabinet.

During morning rush hours all barrier gates are locked in the open position, and cars enter through all three lanes. Collectors stationed in booths man Lane 1 and Lane 2, while Lane 3 serves as an "exact change" entrance.

When the situation is reversed during the evening peak, the Lane 1 gate is locked in the open position by the supervisors. Lane 2 may also be used as an exit. Lane 3 becomes an automatic exact change entrance. The supervisor is also available to make change for entering drivers who may require it.



During off-peak hours of the day Lane 1 is used as an exit, the semaphore-type gate being activated by treadle. Lane 2 is manned as an entrance lane, while Lane 3 functions as the automatic entrance for drivers with the exact change.

A motorist drives up to the "exact change" entrance and tosses his money into the basket. Any combination of coins equal to, or greater than, the correct fee causes the traffic signal to change from red to green and open the gate to allow the vehicle to proceed. After the rear axle of the vehicle crosses the treadle, the gate automatically closes behind the entering automobile.

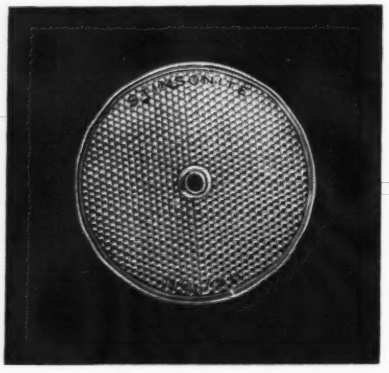
If a car crosses the treadle without depositing the proper fee, however, the traffic light remains red, and a violation alarm is set off. A yellow light atop the standard 8-foot stanchion flashes, accompanied by a loud bell, to signal the violation.

Bulletin Offered on Light Pole Bases

A new bulletin available from Spring City Electrical Mfg. Co., Spring City 68, Pa., includes a line of weathertight pole bases. Inexpensive outdoor lighting standards are easily fabricated by combining Spring City bases with lengths of conduit or pipe. Illustrations of bases with several types of covers are included. In addition to lighting applications, they are used for mounting of signs, police call or fire boxes, traffic signals and electrical enclosures.

Center Mount Reflector By AGA Speeds Installation

A center mount Stimsonite reflector which can be quickly and easily attached to a support structure has been introduced by A'G'A Division, Elastic Stop Nut Corporation of America, 1027 Newark Ave., Elizabeth, N. J. Improved design of the new unit provides a brilliance greater than that of any sealed reflector produced by the company.



The new center mount reflector can be installed as either a temporary or permanent marker. A screw, nail or rivet inserted in the hole in the center of the reflector mounts it on metal, wood or concrete.

Improved brilliance of the reflector extends its visibility to make it an ideal delineator or spot marker when viewed at long or short distances. Hermetically sealed in a corrosion-resistant aluminum holder, the reflector retains its brightness indefinitely despite constant exposure to dirt, rain, snow and ice.

The new center mount Stimsonite reflector measures 3¼ inches in diameter. It is available in crystal, yellow or red.

Plastic Film Street Stencils Available From Ohio Firm

A Mansfield, Ohio firm is offering a new plastic film street stencil which will be of interest to many traffic engineers. The firm, Peerless Sales Co., P. O. Box 141, Mansfield, Ohio, reports that initial interest generated last year by the introduction of a disposable stencil caused them to develop a permanent stencil of plastic.

The manufacturer reports that the unique design of the marking aid is its one big advantage, but also that it is unaffected by moisture, paint, oils, or temperature; that it can be rolled and stored in cylindrical tubes and yet will remain flat when spread on the pavement; and that it is lightweight.

Letters are 9 feet eight inches in height, and the stencils are priced by the number of letters used. Visible at great distances, these are suggested wherever pavement markings are to be used.

Prismo Announces New Permanent-Type Plastic Marking

A revolutionary advance in permanent-type, reflectorized plastic pavement marking has been announced by Prismo Safety Corporation, of Huntingdon, Pa., whose research led the way to the first all-plastic, reflectorized markers over ten years ago.

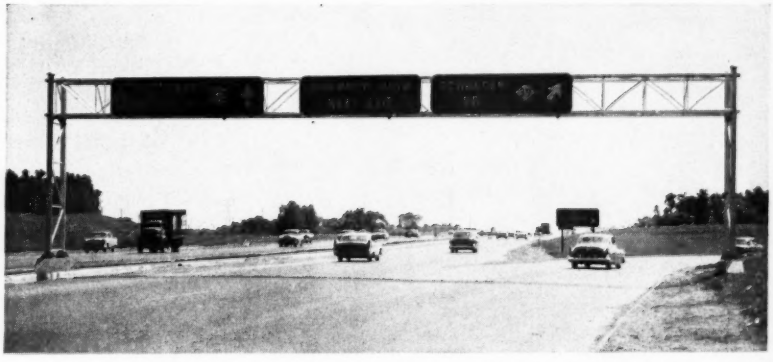
The new product is "Plastic 'SD'." It is coated at the factory with a newly-developed adhesive backing that makes application simply a matter of placing it on the pavement, and applying light foot or roller pressure.

"Development of Plastic 'SD' has been the primary objective of special research in our laboratories for years," Armand E. Keeley of Prismo said. "It has been thoroughly tested, and we feel it is the greatest advance made to date in this field."

In addition to the adhesive coating —itself an entirely new product that grips instantly and quickly develops balanced tensile strength—the reflectorized plastic incorporates a completely new process that has high chipping resistance, excellent plastic cold-flow characteristics, and ability to reseal itself to pavement contour in event of pavement fault.

"The advantages of such a product are obvious", Keeley pointed out. "Because its adhesive grips immediately and seals the marker tighter to the pavement with sun warmth and traffic, Plastix 'SD' can be applied quickly, with little or no interference to traffic.

"In addition, it is skid-proof in both wet and dry weather, and as a result presents no pedestrian hazard. The face is immediately reflective, and reflectivity increases with wear of traffic, since the reflective glass spheres



PLANET SIGN STRUCTURES
Eliminate Maintenance Costs

Planet's all-aluminum sign structures offer maintenance-free support for large overhead signs and lights. No painting is ever required and there are no rust problems. They're durable, too — hurricane force winds have no effect on Planet structures. Erection costs are low, and there's a minimum of traffic interference.

In accordance with your specifications, Planet will build and erect, or build only, overhead sign structures in any size or quantity. Write or call today.

PLANET CORPORATION
• Traffic & Safety Equipment
• Engineered Handling Systems
• Automation Equipment

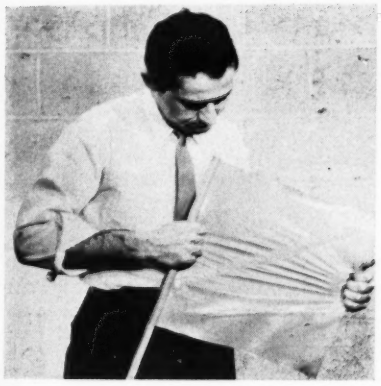
1842 SUNSET AVENUE LANSING, MICHIGAN

are mixed into the plastic before it is formed into reels, strips, blocks or legends, it has highest sphere retention, assuring a long life of reflective brilliance for 24-hour use.

"In developing this new concept of pavement marker," Keeley said, "we matched toughness to tear resistance, so that in event of a break in the pavement, Plastic 'SD' would part and reseal itself instead of tearing free. We also built-in high resistance to abrasion, excellent flexing power and the longest possible life." Keeley said that the new product would far outwear any type of painted or plastic pavement marking now available to engineers.

Luminous Red Flag Provides Greater "Job" Protection

Made of long lasting vinyl-bonded-to-nylon material with super strength dacron stitching, a new type warning flag is uniformly bright on *both* sides,



giving extra visibility—day or night. Thermally reinforced edges provide exceptionally high tear strength.

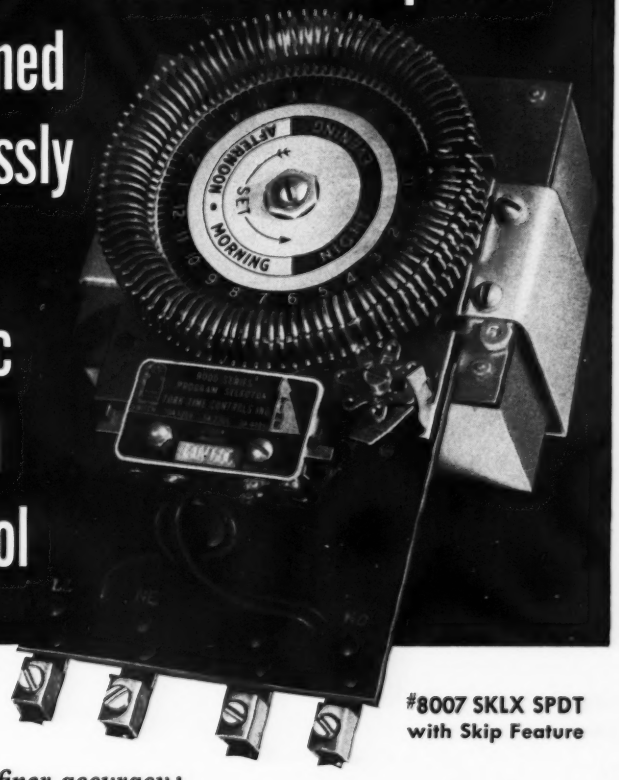
According to Industrial Products Company, developers and exclusive source for this item, their RAD-D-8 Flag will outlast comparable materials by at least 4 to 1. Tests have also shown that it will not fade or discolor and is highly resistant to abrasion and temperature extremes.

Diagonal reinforcing stay assures correct "windproof" action. Furnished standard in a special luminous red in sizes 13″ x 13″, 16″ x 16″ and 18″ x 18″—complete with wooden staff. Also available in high visibility yellow and yellow-red combinations and in grommeted and special styles.

For complete details, write Industrial Products Company, 2944 N. Fourth Street, Philadelphia 33, Pa.

New TORK
PROGRAM TIME SWITCH
with reserve power

Designed Expressly For Traffic Signal Control



#8007 SKLX SPDT
with Skip Feature

Gives you finer accuracy:

- 96 tabs on 24 hour dial permit 15-minute switching changes.
- Tabs easily tilted in or out by hand.
- 1 to 48 operations a day—15-minute minimum setting.
- Switch position stays the same when adjacent tabs are set alike.
- No conventional ON-OFF trippers to slide around the dial.

Gives you these EXCLUSIVE safety features:

- Keeps time for more than 20 hours after power failure.
- Reserve Spring rewinds electrically 10 times faster than used.
- Reserve spring is automatically "exercised" each day — no chance of locked up spring failing to take over when needed.

Here's the safest, most accurate time switch made for traffic signal control. Enthusiastically acclaimed and specified by those who have seen and tested. it. WRITE NOW TO DEPT. T-1 FOR FULL DETAILS.

TORK CLOCK

TORK TIME CONTROLS, INC.
MOUNT VERNON, NEW YORK

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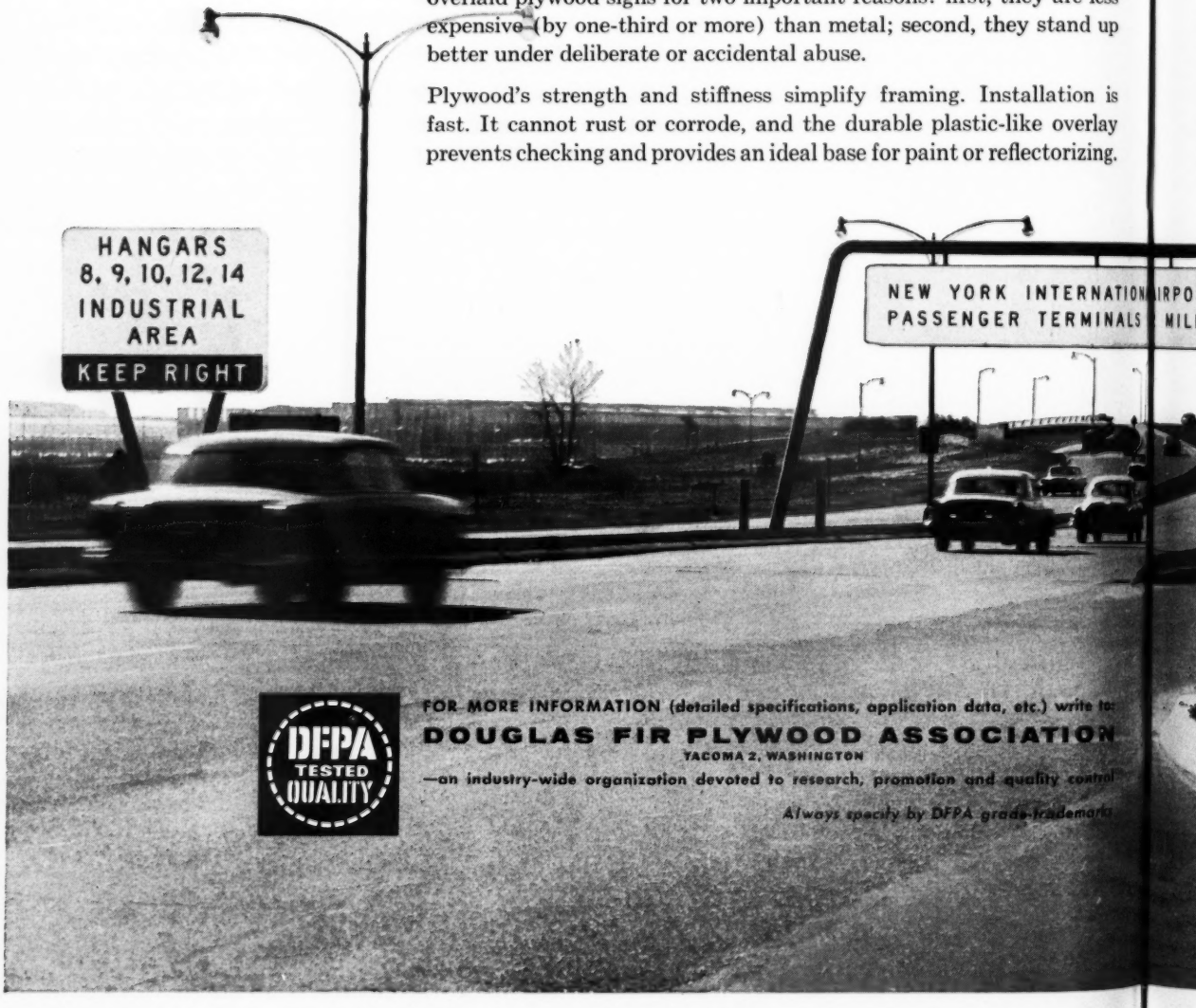
Overlaid plywood signs
Port of New York Authority

GUIDING TRAFFIC to and through the busy airports, tunnels, bridges and highway approaches that comprise The Port of New York Authority facilities are modern color-coded overlaid plywood signs of every size and type—regulatory and directional . . . illuminated and non-illuminated . . . overhead, cantilevered and shoulder mounted.

Port of New York Authority traffic engineers make extensive use of overlaid plywood signs for two important reasons: first, they are less expensive (by one-third or more) than metal; second, they stand up better under deliberate or accidental abuse.

Plywood's strength and stiffness simplify framing. Installation is fast. It cannot rust or corrode, and the durable plastic-like overlay prevents checking and provides an ideal base for paint or reflectorizing.



FOR MORE INFORMATION (detailed specifications, application data, etc.) write to:

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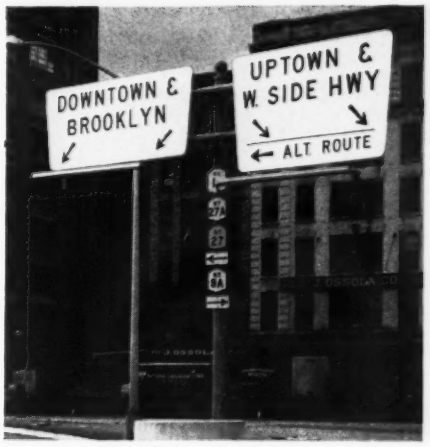
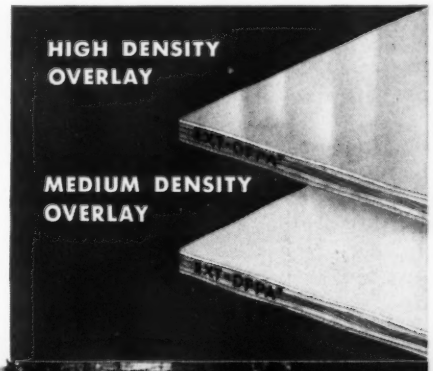
direct traffic at facilities



Illuminated for nighttime legibility, Port of New York Authority sign installations are located in downtown manufacturing and commercial centers as well as semi-rural areas.

Two types of overlaid plywood sign panels are *high density* which needs no paint protection and permits direct application of reflective sheeting; *medium density* for plain painted signs. Base panel is waterproof Exterior (EXT-DFPA®) plywood.



Technical Notes

DISC PARKING IN PARIS

The following is a discussion of the disc parking system, or Blue Zone method of parking control, as practiced in Paris. It was presented before the British House of Commons by M. Pierre Bourlon, Directeur de la Circulation des Transports et du Commerce, Paris, and extracts were reported in the *Bulletin* of the British Road Federation, which are quoted here:

In Paris we had a parking problem like in any other town but the parking problem could not be solved by charging a motorist who wanted to park, because a parking tax as such was not legally possible. As a general rule, no tax may be levied in France by a local authority if that tax is not allowed by Parliament except when that tax is just the payment for a service rendered, such as, for instance, parking attendants. Besides, Parliament has not been favourable to parking taxes up to now because French motorists are hostile towards what they call excessive taxation. It might be interesting to know that a French motorist has to pay the following taxes:

(a) Registration fee of 1.000 francs per horsepower, say 13s. Od., payable only on registration.

(b) A yearly tax of some £8 for an 11 h.p. car.

(c) A tax of 45 francs per litre of petrol which would be 2s. 6d. per gallon. (A gallon would cost 5s. 4d. in France, ordinary petrol.)

Therefore, the only possible solution was limited parking regulations, plus enforcement.

Before 1955, parking was limited to half an hour on many points in the central districts but due to a lack of manpower these regulations were not respected and, in fact, the police did not press the point too much because the problem of parking and traffic was not so acute. But as little by little the number of cars increased and streets became blocked by double banking by lorries, the police decided to increase enforcement.

First Experiment

In November, 1955, the first experiment was made on the Champs Elysées. Traffic wardens were recruited and their duty was to paste coloured stickers on the tyres of parked cars. The colour of the stickers was changed every hour so that when a car had three different colours on the tyres it was certainly parking overtime.

The traffic warden's job was only to paste the stickers and the infringements were reported by constables. Besides at the same time the Prefect of Police decided that all cars obstructing the highway could be removed, that is, loaded on a trailer and pulled away. The Paris police constables never drive a car away because the Paris police authorities think that they must avoid their constables being responsible should an accident occur.

Well, this system gave excellent results. The shopkeepers on the Champs Elysées, especially, saw their returns climbing up and in June, 1956, the coloured sticker system was extended to Place Vendôme and new extensions were asked for. In November, 1957, the Prefect of Police decided to limit to one hour the parking in a central area of Paris called the Blue Zone.

But the coloured sticker system could no longer work because it required too many men and took too much time. I would not say it was a painful job to paste paper on tyres, but nevertheless, the men who did it had to lean down at every car and it was a tiresome job.

So at that time a new system was thought up, that of the Disc. A few months before the Prefect of Police had published an order describing the disc and leaving it to anybody to make them with or without complimentary advertisements on the blank space at the bottom. And, of course, when the order limiting parking time in the Blue Zone was published, a sufficient number of discs were on the market and every car driver was given one free at a police station, at all hotels, restaurants, shops in the district and so on.

All entrances to the Blue Zone are marked by special signs and any driver parking his car inside the Blue Zone must display the disc with the proper figure of arrival and departure times shown thereon. For instance, you arrive at five past ten. You must turn the disc so as to show 10.0 to 10.30 appearing in the right window. You are therefore allowed to park until 11.30. Offences are: no disc, illegible disc, inaccurate time, or parking overtime.

Generous Gap

The discs give you from one hour to 90 minutes parking time, according to your time of arrival. A rather generous gap has been calculated for lunch time, as if you arrive after 11.30 you may park until 3.30 p.m. and, lastly, if you arrive after 6.0 p.m. the car may be left until 9.0 a.m. next morning.

And now a few words about traffic wardens. At the outset when the Blue Zone system was put into force, 418 constables were used to check offences. The reason for putting such a large number of constables on to that enforcement was that the Paris police wanted to strike a psychological blow to make the Paris car drivers feel that we were going to enforce regulations for good. But as soon as we saw that the system seemed to be working smoothly we reduced the number of men and at the same time replaced constables by special wardens. These are generally retired constables who are engaged on a monthly renewable contract basis for a salary of 45.000 francs, a little above £30 per month. Paris constables retire, by the way, at 55.

These wardens are dressed in plain clothes, they wear an arm band and have a service card. Their task is to note down infringements, to leave a notice under the windscreen wiper informing the offender that he will be reported and to report to their superintendent, whose task it is to write down proceedings and forward them to Court.

At present, each warden is in charge of 200 yards of street but it appears that this is too strong a concentration of means and we think we can manage to have sufficient enforcement with not so strong manpower.

We tried to figure out what would be the financial results of this Blue Zone system. Before 1957 in the Blue Zone every place where a car could park was occupied the whole day long by one single car, sometimes two, with a change at lunch time. Now each place may be used by at least six cars.

Economic Success

Considering the petrol and the time lost by cars circling around blocks to find an unfindable parking place and considering that in 270 week days,

53,100 vehicles have been offered the opportunity of parking, we calculate that the petrol saved amounts to 544,806,600 francs, and the time saved 2,389,500 hours which for quite medium salaries would correspond to a saving of 358,425,000 francs at least. And therefore total savings from November, 1957, to November, 1958 have been 903 million francs (£654,000) as against enforcement expenses of 242 million francs (£175,000). It is therefore posisble to say that from the economic point of view the operation was successful.

And now a general conclusion. As I told you at the beginning, this Blue Zone system is nothing more than a system of enforcement and many other systems would be possible with certainly just as much efficiency but such as it is, it has made it possible for the town of Paris to solve *temporarily* some of its parking problems. It works well enough for everybody to ask us to extend it and little by little we are indeed going to extend it with an increase of manpower, certainly not proportional to the increase in surface or length of street.

But of course the only real solution remains, namely, public or private works of large extent to provide for ample off-street parking. The responsible authorities of a country should not permit the number of cars to increase daily at such a fantastic rate without taking the necessary steps to provide room to park and also to move.

SOME CRITICAL PROBLEMS OF TRAFFIC MANAGEMENT IN DISASTERS—A Comprehensive Review of Disaster Research Findings.

CONVERGENCE BEHAVIOR IN DISASTERS: A Problem in Social Control, by Charles E. Fritz and J. H. Mathewson. 1957; 102 p., paper; $2.00. An analysis of the informal movement of people, messages, and supplies toward a disaster area and toward various points within disaster-related zones. Discusses the scope of the problem, forms of convergence, types of convergers (returnees, anxious, helpers, curious, and exploiters) motivational factors in convergence, and various methods and techniques for controlling convergence.

Order from:
Publications Office
National Research Council
2101 Constitution Ave., Washington 25, D.C.

EL MONTE

(Continued from page 20)

opments occur which strongly indicate the trends in community development which can reasonably be expected in the "after" period. El Monte is excellently represented here.

Adjacent to the freeway at the easterly city limits of El Monte, a gigantic 35-acre Sears, Roebuck and related stores center is presently nearing completion. This development, attributable in part to the freeway improvement, will represent when completed an investment in freeway-adjacent-properties approximating some three to five millions of dollars. This sum becomes perhaps strikingly pertinent when the following facts are pointed out for comparison:

1. Between 1952 and 1955, 167 right-of-way parcels were acquired for the San Bernardino Freeway through this section for a total consideration of $2,160,000.
2. The three- to five-million-dollar investment represents, then, *in new, significantly freeway-induced development, over twice the total amount spent for right-of-way on the entire El Monte freeway project, if the latter estimate is used.*

Conclusion

Each item of the foregoing data sheds significant light upon the specific elements of the El Monte "bypass" situation which this study sought to investigate. Taken either singly or as a whole, they clearly point up that:

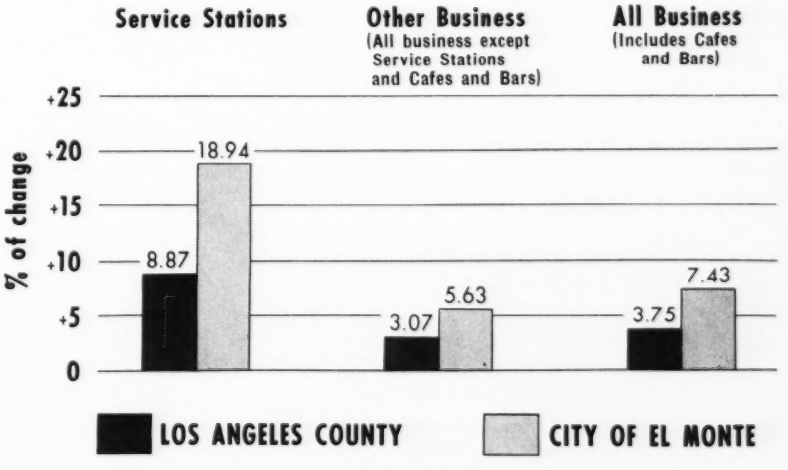
1. The elevated, controlled-access freeway through the City of El Monte has in no way hindered the growth of the entire community in:
   (a) Area
   (b) Population
   (c) Commercial and residential development.
2. El Monte in the "after" period has shown the exact opposite of the alleged and feared "Chinese Wall" situation.
3. The "bypass" of Garvey Avenue and Valley Boulevard—the "superseded," approximately parallel highways which generate two-thirds of El Monte's business—has not been accompanied by either business decline or loss to:
   (a) The specific Valley-Garvey general business sections
   (b) The overall El Monte commercial complex.
4. Without exception, every class of business analyzed in the "after" freeway period has recorded significant gross sales gains.

RETAIL BUSINESS COMPARISON

For Garvey Ave. and Valley Blvd.

Based on total sales volume one year before and one year after the opening of El Monte Freeway Link (July, 1956)

(Note: Cafes and Bars omitted because of lack of similarity of trend lines prior to freeway opening)



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Yearbook Changes

BAHN, Adolph, Jr. (Associate)
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VEY, Arnold H. (Member)
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WETZEL, Edward G. (Member)
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Membership Applications

The Institute of Traffic Engineers welcomes applications from qualified traffic engineers, but does not desire as members persons who are unqualified. Listed below are the names of those from whom applications for membership or transfer in grade have been received since the last published list. Institute members are urged to review this as soon as possible and immediately inform the Executive Secretary's office if names of people are found who are known to be unqualified for ITE membership or transfer.

NEW APPLICATIONS

BALLANTINE, Robert A.
Assistant Urban Studies Engineer, Ontario Department of Highways, Parliament Buildings, Toronto, Ontario, Canada. May 2, 1959 for JUNIOR grade.

BARKER, Frank E.
Assistant to the Traffic Engineer, Chicago Transit Authority, Merchandise Mart Plaza, Chicago 54, Illinois. May 4, 1959 for ASSOCIATE grade.

BARNES, Charles F.
Project Engineer, Connecticut Highway Department, 24 Wolcott Hill Road, Wethersfield, Connecticut. April 8, 1959 for JUNIOR grade.

BOURQUE, Richard H.
Traffic Engineer, DeLeuw, Cather & Company, 150 North Wacker Drive, Chicago, Illinois. April 30, 1959 for JUNIOR grade.

BURNINGHAM, Bryant D.
Project Coordinator (Assistant Research Engineer), Utah State Road Commission, 525 West 1300 South, Salt Lake City, Utah. April 30, 1959 for ASSOCIATE grade.

COUVALT, Donald O.
Associate Professor of Civil Engineering, Georgia Institute of Technology, Atlanta 13, Georgia. April 13, 1959 for ASSOCIATE grade.

GRIMM, Vincent E., Jr.
Traffic Engineer, City, 3343 Pan American Drive, Miami, Florida. May 4, 1959 for JUNIOR grade.

HAMMEL, Lawrence V.
Teaching Assistant, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge 39, Massachusetts. April 30, 1959 for JUNIOR grade.

HELM, Brian
Traffic Engineer, W. S. Atkins & Partners, 158 Victoria Street, London S. W. 1, England. April 24, 1959 for JUNIOR grade.

HORINE, Harold H.
Assistant District Engineer of Traffic, Indiana State Highway Department, Box 467, Crawfordsville, Indiana. April 8, 1959 for JUNIOR grade.

KARMEIER, Delbert F.
Research Associate, Department of Civil Engineering, University of Illinois, 301 Civil Engineering Hall, Urbana, Illinois. April 19, 1959 for JUNIOR grade.

NELSON, Gilbert M.
Engineer, Benjamin E. Beavin Company, 104 East 25th Street, Baltimore 18, Maryland. April 16, 1959 for ASSOCIATE grade.

PALMER, Melville R.
Assistant Traffic Engineer, Transport Department, P. O. Box 6107, Te Aro, Wellington, New Zealand. April 7, 1959 for ASSOCIATE grade.

PERRY, Robert L.
Traffic Analyst, Department of Traffic & Transportation, Metropolitan Dade County, 3701 N. W. 72nd Avenue, Miami, Florida. April 15, 1959 for JUNIOR grade.

POWELL, Berkeley D.
Assistant County Road Commissioner, County Court House, Riverside, California. April 7, 1959 for ASSOCIATE grade.

SCHWEIGER, Frederic M.
Traffic Engineer, George W. Barton & Associates, 600 Davis Street, Evanston, Illinois. April 15, 1959 for JUNIOR grade.

SHIATTE, Kenneth W.
Assistant Highway Engineer, California Division of Highways, District, 703 B Street, Marysville, California. April 23, 1959 for JUNIOR grade.

STENGER, Philip J.
Associate Traffic Engineer, Virginia Department of Highways, 1221 East Broad Street, Richmond, Virginia. April 13, 1959 for ASSOCIATE grade.

WILLIAMS, Robert C., Jr.
Traffic & Planning Engineer, City, City Hall, Spartanburg, South Carolina. April 27, 1959 for JUNIOR grade.

WILSON, Robert A.
Senior Designer, Planning & Traffic Div., West Virginia State Road Commission, Room 224, State Office Building No. 3, Charleston, West Virginia. April 17, 1959 for ASSOCIATE grade.

APPLICATIONS FOR TRANSFER

BREUNING, Siegfried M.
Associate Professor of Civil Engineering, University of Alberta, Edmonton, Alberta, Canada. April 27, 1959 for ASSOCIATE grade.

CLYDE, Max N.
Engineer of Geometrics, Michigan State Highway Department, Stevens T. Mason Building, Lansing, Michigan. April 13, 1959 for ASSOCIATE grade.

FREEDMAN, Allan J.
Municipal Studies Engineer, Ontario Department of Highways, Parliament Buildings, Toronto, Ontario, Canada. May 2, 1959 for ASSOCIATE grade.

FRITZSCHE, O. Herbert
State Highway Engineer, New Jersey State Highway Department, 1035 Parkway Avenue, Trenton, New Jersey. April 22, 1959 for MEMBER grade.

GREEN, John F.
Consultant, 41 Smith Street, Danbury, Connecticut. April 17, 1959 for ASSOCIATE grade.

McGRATH, William R.
Director, Department of Traffic & Planning, 200 Orange Street, New Haven, Connecticut. April 7, 1959 for MEMBER grade.

McLEAN, Charles H.
Traffic Engineer, George W. Barton & Associates, 600 Davis Street, Evanston, Illinois. April 17, 1959 for ASSOCIATE grade.

THOMAS, Richard C.
Senior Assistant Traffic Engineer, City, Room 404, 1404 East 9th Street, Cleveland 14, Ohio. May 1, 1959 for ASSOCIATE grade.

VAZQUEZ RIVERA, Wilfredo
Chief, Accident Investigation Unit, Bureau of Traffic, Dept. of Public Works, Stop 22, Santurce, Puerto Rico. April 13, 1959 for ASSOCIATE grade.

WEINBERG, Irving B.
Intersection Design Engineer, Ontario Department of Highways, Parliament Buildings, Toronto, Ontario, Canada. April 10, 1959 for ASSOCIATE grade.

WHITE, Frank T.
Associate Highway Engineer, California Division of Highways, Box 3366 Rincon Annex, San Francisco 19, California. April 27, 1959 for ASSOCIATE grade.

Training Opportunities

June 8 - 19 — TRAFFIC ENGINEERING AND POLICE ENFORCEMENT COURSE—
This course is an annual one offered by the Ontario Traffic Conference, and is scheduled this year at Huron College, University of Western Ontario, London, Ontario, Canada.

June 18-20—FREEWAY OPERATIONS SEMINAR
A seminar will be held at the Eugene Hotel, Eugene, Oregon under the sponsorship of the Western Section. Planners, traffic engineers, design engineers, enforcement officials, and others having official responsibility for freeways (planning, design or operations) are invited. For reservation forms and other information, address F. B. Crandall, Traffic Engineer, Oregon State Highway Department, Salem, Oregon.

JUNE 22-24—FREEWAY OPERATIONS SEMINAR
A seminar will be held on the campus of the University of California at Santa Barbara, California under the sponsorship of the Western Section. Planners, designers, traffic engineers, enforcement officials and others having responsibilities for freeway planning, design and operations are invited. For reservation forms and other information, address John W. McDonald, Auto Club of Southern California, Box 2890, Los Angeles 54, California.

SUSTAINING ORGANIZATIONS

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UNIFORMITY

(Continued from page 23)

and I believe that the scale which will determine this correct balance is the exercise of our individual engineering judgment. I believe that the factual analysis which is basic in the formulation of individual engineering judgment is the one and only factor which can keep us well away from the dangers of either extreme.

TIDEWATER CITIES

(Continued from page 26)

What the Future Holds

The shackles of inadequate communications which have bound the Tidewater cities for so many years and restricted their growth are now being steadily broken. The Norfolk-Portsmouth tunnel, completed in 1952 was the first great achievement toward this goal. This tunnel is now carrying such a heavy volume of traffic that work is scheduled to begin on a second Portsmouth tube in 1959.

The last and probably most important shackle will be removed when the Chesapeake Bay Bridge-Tunnel between Norfolk and the Eastern Shore of Virginia, Maryland, and Delaware becomes a reality. Plans are now in progress and perhaps by 1962 the work will be completed. When these four tunnels —*Norfolk-Portsmouth* (2), *Hampton Roads*, and *Chesapeake Bay* are completed—Tidewater, Virginia for the first time will have the adequate highway transportation facilities so necessary for growth in the motorized world of today.

HALLIE L. MYERS

Hallie L. Myers (Associate Member, ITE) died Sunday, May 11, at his home in Indianapolis, Indiana. At the time of his death, he was executive director of the Indiana Traffic Safety Foundation, a post he had held for six years. He was 61 years old.

Mr. Myers had been actively engaged in traffic and traffic safety work for many years. From 1937 to 1943 he was director of traffic for the Indiana State Highway Commission. During the war he served in the Transportation Corps, and then was named superintendent of the Indianapolis Street Railways.

Long interested in safety, Mr. Myers was identified with the Transit Section of the National Safety Council and later with the Traffic Section of that organization. He authored numerous articles in national magazines and was a frequent speaker at traffic and safety meetings.

Surviving are the widow, Mrs. Beryl Myers; a son, Hallie, Jr., of Louisville, Ky.; a brother; and two grand-children.

MOTOR VEHICLE DEATHS AND CHANGES

	DEATHS				CHANGES				
						Last 12 Months			
								4 Months Moving Ave.*	
Month	1956	1957	1958	1959	1956-1959	1957-1958	1958-1959	'57-'58	'58-'59
January	2,954	2,882	2,770	2,880	— 3%		+ 4%		0%
February	2,652	2,508	2,360	2,410	— 9%		+ 2%		— 1%
March	2,940	2,843	2,560	2,790	— 5%		+ 9%		+ 2%
3 Mos.	8,546	8,233	7,690	8,080	— 5%		+ 5%		
April	2,970	2,933	2,580			—12%		— 8%	
May	3,094	3,065	3,010			— 2%		— 7%	
June	3,338	3,302	3,000			— 9%		— 8%	
July	3,555	3,308	3,210			— 3%		— 6%	
August	3,535	3,635	3,450			— 5%		— 5%	
September	3,653	3,365	3,330			— 1%		— 5%	
October	3,476	3,466	3,600			+ 3%		— 1%	
November	3,603	3,620	3,510			— 4%		— 1%	
December	3,858	3,775	3,620			— 3%		— 1%	
Total	39,628	38,702	37,000						

*Four Months Moving Average is based on changes between the totals for four months instead of one month. For example, the April figure shows the change between the totals for January-April 1957 and January April 1958, etc. Adding several months together tends to smooth out single month changes which may be affected by differences in the number of weekends in a month from one year to the next, random variations, etc.

All 1956 and 1957 figures are from the National Office of Vital Statistics.
The 1958 and 1959 figures are National Safety Council estimates.

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Section News

SECTION MEETINGS

Texas Section — El Paso, Texas, June 26-27. Contact: Joe Nadon, Jr.
Western Section — Seattle, Washington, July 28-30. Contact: Bruce Culver.

CANADIAN SECTION

Ontario Region Meetings

A meeting of the Ontario Region was held on February 24th at the Don Valley Golf Course in Toronto and was attended by 66 persons. Considerable discussion was held on the forthcoming ITE Workshop to be held in Chicago and it was decided to have Mr. A. Freedman, our Regional Director appoint two delegates to represent Ontario.

Mr. A. Lomax presented a brief report on the District 3 outing to be held in Pokagon State Park, Indiana and the members appointed Mr. Lomax and Mr. Eric Wiley to serve on the arrangements committee. Bob Burton gave a report on the Civil Defence Course held in Arnprior. This was a very successful forum with very good attendance by ITE members from right across Canada.

Our guest speaker was Mr. Norman Pearson, Director of the Hamilton-Wentworth Planning Board, who gave a very colorful talk entitled "Errors in Highway Planning." Mr. Pearson's remarks provoked considerable discussion and he was one of the best speakers we have had for some time.

Fifty-six Ontario Region members met on April 8th at the Don Valley Golf Course in Toronto to discuss the ITE Workshop and view films of various Traffic Engineering Topics.

Al Freedman announced that two Canadian Section Past Presidents—Mr. S. Cass and Mr. W. Q. Macnee — would be our representatives at the Chicago Workshop. Sam Cass gave further details on the purpose of the Workshop and invited comments from the membership.

The election to Section Affiliate Membership of Mr. D. Attridge, Galt, Ontario; Mr. W. Bolton, Scarborough; Mr. W. Dickson, Toronto, was announced and the new members were introduced to the meeting.

Four films were shown at this meeting covering pavement markings and equipment, pedestrian safety and traffic planning. Bill DeHarte of Scotts and Harold Clements of Prismo presented two films on the use of Wald Stripers and Prismo pavement marking materials. The use of high speed striping machines on the Massachusetts Turnpike was quite impressive. Sam Cass showed a publicity film prepared by Metropolitan Toronto on the pedestrian crosswalk program and through the courtesy of the Port of New York Authority we viewed the film "Metropolis in Motion" which outlined the past achievements and future plans of the Authority.

Personals

Grant Bacchus is leaving Metro. Toronto Planning Board to go to A. D. Margison and Associates as Traffic Planning Engineer.

John Vardon, who was on a post-graduate course at Queen's University under the Joint Highway Research Program, will be returning to the Traffic Section of the Ontario Department of Highways in May.

INDIANA SECTION

More than 800 city, county and state officials, contractors and suppliers attended the 45th annual Purdue University Road School March 30-April 2.

The separate sessions conducted by the traffic engineers were exceptionally well attended. A vote of thanks to our hard working secretary-treasurer for arranging such a convenient and comfortable room in the new Memorial Center.

The April meeting of the Section was held at the Fowler Hotel in Lafayette on Tuesday evening, March 31, as an activity of the Road School. A total of 69 members and guests attended the dinner.

President Cox presided at the meeting and after dinner introduced the guests of the section who included:

Matthew C. Sielski, Director, Safety and Traffic Engineering Department, Chicago Motor Club, Chicago, Illinois, and National President, Institute of Traffic Engineers;

Fred B. Farrell, Assistant Regional Engineer, Bureau of Public Roads, Region 4, Chicago, Illinois;

Harmer E. Davis, Director, Institute of Transportation and Traffic Engineering, University of California, and Chairman, 1959, of Highway Research Board;

Floyd L. Anthony, Regional Design Engineer, Region 4, Bureau of Public Roads, Chicago, Illinois;

K. B. Woods, Head, School of Civil Engineering, Purdue University, and

Ben H. Petty, Director of the Annual Road School at Purdue for many years

The speaker of the evening was the Honorable Robert A. Everett, Representative to the Congress of the U. S. for the Eighth District of Tennessee who entertained the group with a non-serious after dinner address.

The President called to the attention of all present the support of the Road School activities of the Indiana Section by the Sustaining Organizations of the Section and thanked them for their assistance.

President Cox and Vice President Siegel will represent the Indiana Section at the ITE Workshop to be held in the Moraine Hotel, Highland Park, Illinois, May 21-22. President Cox will have further information on this matter at the May meeting.

MID-ATLANTIC SECTION

Bill Leidlich will be moving to California soon; still with A. G. A., but with a new territory. We would like to wish him and his lovely wife, Bridget, all the luck in the world.

John Comiskey is receiving congratulations on achieving his Professional Registration.

Ed Ricker has assumed his duties as head of the newly created Traffic Engineering Bureau in the Department of Highways. Ed was Traffic Engineer for the New Jersey Turnpike before he came to Harrisburg. Any of you who were at the Seminar last October will remember Ed's very fine speech on progress at the Turnpike.

W. J. Miller recently attended a Bureau of Public Roads meeting on Civil Defense in Hagerstown, Maryland, and reports that traffic engineers can expect a large role in preparing and conducting orderly evacuation procedures. He says "Get your geiger counters in order."

Stuart A. Cunningham has just accepted an extra-curricular assignment as a member of Committee E-5 of the ITE, concerned with driveways and curb cuts.

W. R. Carrow says two of his principal activities now involve conducting the traffic paint performance test and developing signing procedures for maintenance and construction operations for the Delaware State Highway Dept.

Dave Witheford has a new job as Chairman of a Sub-Committee in the Highway Research Board Department of Traffic and Operations, the research area being No-Passing zone design and marking. He is open to all suggestions and comments any local members would care to offer. In between freeway studies and other assorted studies, the Delaware Planning Division is working on a new format of their annual traffic volume report.

Dr. J. Douglas Carroll, Jr., presented an interesting explanation of the Pittsburgh Area Transportation Study at the March meeting of the Mid-Altantic Section. The principal objective of the Pittsburgh program is the development of a detailed and thoroughly documented plan to be used in the formation of a long range transportation program which will be adequate to meet the needs of the area in 1980. In order that the collected data will be available for continuing evaluation, the study is designed so that the travel facts can be kept current with a minimum expense. The data collected for the study will be of four different types. They are: Travel Information inventories, A land use survey, An assessment of present transportation facilities, and Minor additional fact gathering work. The first stage of the analysis work involves summarizing and interpreting the collected data. Once this has been accomplshed, it will then be possible to forecast future land development and transportation needs.

The Mid-Atlantic Section welcomed W. W. Rankin to its growing list of members by placing "Woody" in charge of the Region's Technical Meetings. He is already on the job and reports that the Western Region will have its first Technical Meeting following a luncheon during the last week of April, the exact date to be determined on the availability of qualified speakers. The meeting will consist of short discussion talks on the practical applications of signing and signals, followed by a general floor discussion.

Philadelphia is completing a brand new Sign and Signal Shop at 'G' and Ramona Sts., which they hope to be able to show off next fall. Like, it's the most.

John Scruggs, who has been in charge of Planning and Surveys in the Philadelphia Bureau of Traffic Engineering, has been transferred to Operations, and is now spending all of his time on it. The Planning and Survey work is now under Iwan Czyz.

MIDWEST SECTION

The February meeting of the Midwest Section was held at the Hotel Tilden-Hall in Champaign, Illinois, on the 26th. This site was chosen because a large number of members was in attendance at the University of Illinois Traffic Conference.

President Al Forde was on hand to preside. The program included a lecture on humor by Professor Robert Sheldon of the athletic department and a skit put on by the student chapter which depicted the methods used by a city traffic engineer to produce a public speech.

The attendance of 82 including 35 section members augurs well for the prospects of future meetings to be held downstate.

The wheels of organization were set in motion for our 1960 convention when the Executive Committee met for the first time on January 19, 1959, with Evan Olmstead, General Chairman of the Local Arrangements Committee presiding. It was quite evident that Evan had already put much time and effort into his work when he pre-

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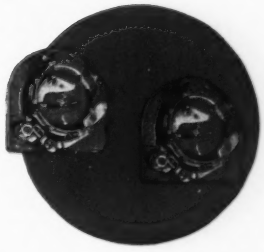

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sented the agenda to the committee. The tentative program schedules, budget requirements, hotel arrangements, and committee appointments which he had prepared got the committee off to a flying start.

A second meeting was called on February 16, 1959, with committee chairmen also in attendance. At this meeting committee responsibilities and duties were outlined and the various committee rosters completed. The following are committee chairmen:

Finance, Larry Dondanville; Hotel Arrangements, Henry Peck; Registration and Information, Bob Zralek; Public Relations and Publications, Dick Bennett; Special Services, Bob Harris; Sessions Arrangements, Fred Potenza; Entertainment, Mike Hartigan and Marty Blackman; Ladies Activities, Mrs. Bob Nau.

The Midwest Section Board has named George Hagenauer to replace the late John Zimmerman on the board. They also adopted a policy that *Midwest ITEms* be furnished upon request to any former member of the section residing outside the area of the section.

Mr. Ira J. Bach, Commissioner of City Planning, presented the new Chicago Central Area Plan to the Midwest Section at the March meeting.

The evening began in the usual manner with cocktails and dinner at the Chicago Real Estate Board. After the repast was completed, President Al Forde got the meeting under way with a few introductions, a short welcome to the guests present and finally the presentation of the featured speaker, Mr. Bach.

Mr. Bach traced the history of the Central Area Plan back to its origin in Daniel Burnham's original plan for Chicago. While a great deal of good had sprung from this plan, much had not been accomplished. Therefore, Mayor Daley ordered that the first task of the City Planning Department should be the preparation of a Central Area Plan. There were many specific reasons for this priority action, but all had to do with the restoration of the Central Area as the business, commercial, social and cultural hub of the city.

The new Central Area Plan took shape at a series of meetings wherein various experts in city planning presented their ideas for purposes of discussion and analysis. Almost at once it was mutually agreed that the Central Area Plan would be totally new rather than a series of isolated proposals based on the multitude of past plans.

The Central Area Plan as finally evolved extends from North Avenue to 26th Street and from Ashland Avenue to the Lake. Some of the more outstanding general features of the plan are:

1. It is estimated that the total cost will be $1.5 billion. Of this amount, private capital will contribute 80 per cent.
2. New "high rise" residential occupancy will exceed 50,000 persons.
3. The core of the area will be the civic center, a grandiose complex of government buildings, pedestrian plazas, elevated walkways, etc.
4. The University of Illinois and the transportation center are new developments anchoring the plan on the south and west.
5. Vast new parking and transportation facilities will be provided, including subways, a new Outer Drive, "speedwalks," and other improvements.

Mr. Christensen, also of the department of City Planning, then presented a slide demonstration of what the foregoing would look like. Even accounting for the artist's enthusiasm, the slides almost defied the imagination in what they represented for Chicago.

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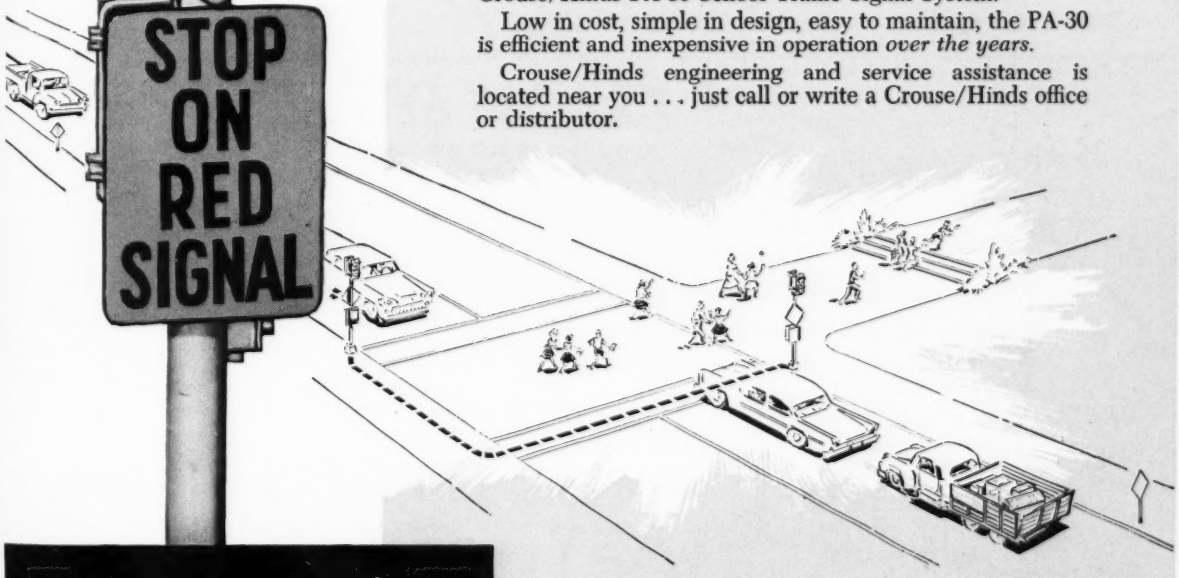

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Mr. Bach closed his presentation by stating that all of the improvements inherent in the Central Area Plan could be completed by 1980!

New Midwest Section Members include Dick Gern of George Barton and Associates, John May with the Illinois Division of Highways at Peoria, and Harvey Shebasta, Jr., State of Wisconsin District Traffic Engineer in Milwaukee. New Section Affiliates are Joe Lema with the City of Milwaukee and Joe Oppenlander, Research Associate at the University of Illinois.

NEW ENGLAND SECTION

The New England Section conducted its annual joint full day session in conjunction with the Annual Meeting of the Massachsetts Safety Council in Boston, Massachusetts on March 16. It was a most fruitful and enjoyable meeting as usual, and among many interesting papers were three by ITE-ers', Bruce Campbell, Robert G. Mitchell, and William R. McGrath.

It was fitting and proper, indeed, that the ITE dinner meeting occurring on the eve of St. Patrick found the City of Boston represented at the head table by Timothy J. O'Conner, Edward J. McCarthy, William T. Doyle, Joseph M. Galeota, and William Arthur Reilly, Director of Administrative Services for the City of Boston. Mr. Reilly spoke on "A Little Bit About a Lot of Things."

It was agreed at the section meeting that the New England Section would adopt the practice followed by many other sections and begin publication of a news letter. Daniel S. Hammond was subsequently appointed as editor.

It was announced that in addition to directors and past officers, the New England Section would be represented at the ITE Workshop in Illinois in May by Earl Flynn, Roger Chandler, and William R. McGrath.

WASHINGTON (D.C.) SECTION — Jim Booth, Deputy Commissioner in Baltimore, has been granted a four-months leave of absence, with three months to be spent in Southern Rhodesia on an IRF-State Department study. Feeling that Africa might offer some new challenges which even a Marylander could not cope with directly, a "shower" was held by some of his colleagues. The photograph below, taken at that time, shows Jim in his "going away" outfit.

TEXAS SECTION

Austin Area

A new variable cycle signal system was placed in operation in the University Area on February 18. The system is proving quite satisfactory. Harold Beasley has run a number of recorded graphs on operations and has now become curious to find out what happens when you twirl this dial or push that button to other positions. Consult Harold for information on when "Joe College" rushes his date back to the "dorm" to beat the curfew hour. Harold just reads the graph. Information is that it takes a 72 second cycle at 11 PM on the "Drag" to get the job done.

Austin's new Municipal Auditorium, opened January 5th, provided many traffic challenges. Divided roadways with a 14-foot median separation plus the provision of left turn lanes and no parking at the curb (off-street parking lots provide for 3,200 vehicles) has eliminated congestion and expedited mass movements in the area proximate to the Auditorium. Another variable cycle signal operation in an extensive area adjacent to the Auditorium is now in the design stage .

A report on the pilot O & D study being conducted during the past several months is about ready to go to press; also a report on a "Traffic and Transportation Plan for the City of Austin."

Bill Towery, Traffic Supervisor and Tommy Nuckols, Research Assistant, are recent additions to our Engineering Staff. Both attended the January meeting of TexITE. Perhaps, a couple of TexITE members, by El Paso meeting time?

Some of us hope to see some of you all in El Paso, come the end of June.

Sam Roper has been kept busy trying to

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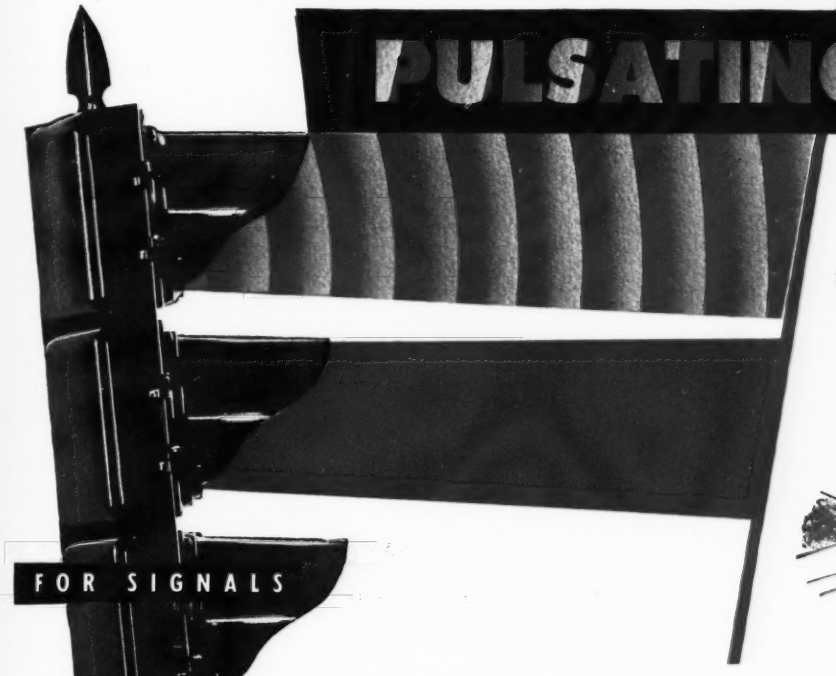

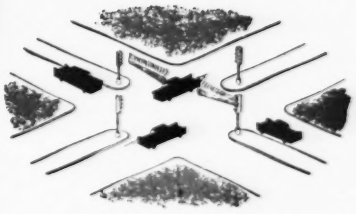

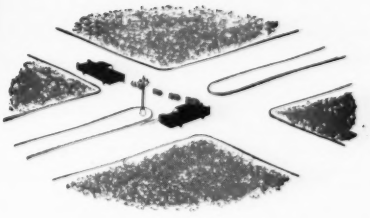

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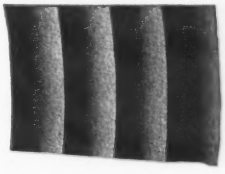

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get all the districts informed of the intricacies of preparing a set of plans for signing the Interstate system. It seems as though this will blossom into a full time job and he will need all the help he can get to keep up with it.

Bill Welty is at home now recovering from a majotr operation and doing just fine. It seems that he has a long list of things that can't be done to him anymore. If you want to know all about it ask Bill the next time you see him. We all miss Bill and hope he can get back into harness real soon.

Ed Smith is back into the swing of things after his tour of learning at A & M and like everyone else has plenty of extra work to keep him busy since Dick Oliver has departed and Bill Welty is sick.

It seems that all we did was pile more work on ourselves when we let Dick Oliver move to Corpus Christi. Not only do we have to take over the work he was doing but now we have one more District Traffic Engineer to put us on the spot. We expect Dick to have a nice sun tan when he comes up to see us next time.

Our National Director Bim Greer is "burning the midnite oil" preparing for the workshop this month. Bim has had his problems in filling the quota from this District to go to the workshop.

San Antonio Area

San Antonio will assume the operation of the transit system by May 1st. Mr. F. Norman Hill (Affiliate Member of Institute of Traffic Engineers) was appointed as the General Manager of the Red Arrow Freight Lines and has had transit experience in Baltimore and Little Rock.

Carl Braunig has been making experiments with the illumination of overhead signs. He has also been preparing a chapter on roadway capacity to be included in the Texas Design Manual.

Houston Area

Adolph Bahn, Jr. wasn't around to give us a report of what he has been working on since he has been transferred to the New York Office of Parsons, Brinckerhoff, Hall and McDonald. We regret losing Al from the great State, and hope that he will soon return.

Douglas B. (Doug) Byrne reports that Signal Engineering has purchased a new office building and two warehouses, with plenty of parking space, at 3022 Dunlavy. Doug is spending most of his time these days "politicking" for a position on the Spring Branch School Board. Good luck, Doug!

We understand that George Jamison is having trouble conversing with his family these days. Seems as though his business keeps him "across the Border" most of the time and his family still speaks English.

Cooper McEachern and Neill Amsler have been knee deep in paint tests recently. They got the samples down on the test wheel and finally got some test stripes on one of the major thoroughfares after being delayed by rain. They also have their hands full with a test application of thermo-plastic marking materials.

There has been a change in title for Dave Fielder, Frank Watson and Harvey Hawkins recently. An ordnance passed City Council changing their titles to Senior Traffic Engineers. At approximately the same time Dave Fielder was shifted to the Shop as an Operations Engineer, and started out by removing 150 parking meters which were not being used properly as indicated by revenue checks.

Frank Watson recently made a twenty-four hour parking study at the Houston International Airport to indicate some possible changes.

Harvey Hawkins reports that his time has been pretty well taken up for the last several weeks with the installation of some electronic monitoring equipment on the Gulf Freeway at Cullen. He has heard by the grapevine that Gene Maier anticipates buying one of these in kit form, and will let Harvey assemble it since he owns a soldering iron.

Amarillo Area

John DeShazo, Jr. reports the only noteworthy news item from Amarillo this month is that a comprehensive parking survey has been completed and will go to the printers in a short time. "We are happy to get this survey behind us," John says.

Wichita Falls Area

Earl Williams has accepted an appointment on the ITE Technical Council Committee 5-E on "Driveway and Curb Cut Permits and Designs." "This," says Earl, "is the only departure from pure routine operations."

Earl also mentions the fact that he and the Wichita Falls Chamber of Commerce are talking about a Texas Section meeting there sometime in 1961.

Dallas-Fort Worth Area

Bob Buckman, Bill Brandes, George Cogger and Jim Saylor, along with a group of other interested persons in the Dallas-Ft. Worth area, were recently guests of the Sargent-Sowell Company in Grand Prairie for a demonstration of the Mark-Rite Line Markers. Lunch was served for the group at the Howard Johnson Restaurant on the Turnpike.

Plans are beginning to shape up on several of the street improvement projects included in the $22,000,000 program for which Dallas voted bonds last December 2. During the past six years Dallas has completed construction on a total of 50 miles of new divided highways on the major thoroughfare system at a cost of $25,000,000.

Already under way are plans for the annual meeting to be held in Dallas next January. Winn and Merle Carsten entertained Ruth and Lloyd Braff, Marge and Bill Brandes and Oldine and Jim Saylor early in March. As you might expect, during the later hours of the evening there was no dearth of ideas.

Jim Saylor recommends the following quotation for serious consideration by all of us: "Happiness in life is not so much a matter of position as it is disposition.' (Ed. "We agree.")

Corpus Christi Area

Dick Oliver says: "It seems as if we do not have much time to report the news. We are too busy on projects that might make news." Dick also reports that he and his crew are busy on signing plans for the interchanges of Corpus Christi High Bridge. They hope to let a contract sometime in June.

Paul Rice reports that the City is straightening a sharp "S" curve on Ocean Drive. He is also preparing to interconnect traffic signals on South Staples Street, an important North-South artery.

Fifth Annual Meeting — Austin

The Fifth Annual Meeting of the Texas Section, Institute of Traffic Engineers was held in Austin at the Commodore Perry Hotel on January 30-31, 1959. Walt Klapproth held forth as General Convention Chairman. Approximately 140 persons were in attendance. A very interesting and informative Technical Session was presented under the able chairmanship of Jack Keese.

As part of the Ladies Activities, a conducted bus tour of the City, with lunch at the Westwood Country Club, was provided and attended by nearly 50 Mrs. TexITEs and friends. At sundown Club TexITE opened its doors to a night club atmosphere for dinner, dancing, and staged entertainment to the delightful music of Bill Prather and his Hi-Fi Boys.

Texas Transportation Institute — Progress in Research

The research staff at Texas Transportation Institute has been busily engaged in activities of current research projects plus the usual teaching load.

Charles Pinnell has been conducting studies on freeway ramps in Houston in close cooperation with the T.H.D. and the City of Houston and particularly Dale Marvel and his staff and Gene Maier and his staff. These studies are revealing some very valuable information which will no doubt bring about a new concept of ramp design.

Keese and Pinnell assisted in the evaluation of freeway monitor which Jack Hulett had on demonstration on the Gulf Freeway.

Dick McCasland has been slaving over the development of equipment for studying night traffic in connection with the project on Intersection Illumination. The model of the Texas City Wye is virtually complete and tests have been started to evaluate the various lighting schemes desired by each member of the project advisory committee. The advantage of the model is that it permits an observer to move luminaires, rearrange lighting patterns, raise the lights to 45′, illuminate signs, and anything else he wishes to take a look at. These preliminary studies indicate that this method of study is going to be quite useful in highway lighting research.

Keese and Pinnell have been working quite closely with the joint committee on Median Practices on Highway Routes on City Streets. Numerous studies are being conducted. The work of this committee will constitute a very valuable contribution to this common problem of city street medians.

Other projects of interest to traffic engineers which are now being conducted by the highway design and traffic engineering section of T.T.I. are:

(a) Project on Speed Zoning under the direction of Neil Rowan. The first phase of this study is virtually complete and will provide an accurate analysis of the effectiveness of speed zones.

(b) Professor B. F. K. Mullins is conducting his studies on freeway traffic accidents. Furnishing the police officers with standard diagrams of typical freeway facilities and the adoption of reference points along the freeways has resulted in obtaining accident data which is of much more value to the traffic engineer in his analysis.

The 33rd Annual Highway Short Course which was held March 10-12 had a registration of 905. The program was quite a full one and quite successful. TexITE members participated in numerous sections of this program.

WESTERN SECTION

Arizona-New Mexico Area

The City of Phoenix has officially approved a new annexation which will become effective April 28th. This annexation includes 58 square miles, thus bringing the area of the City to approximately 110 square miles. Included in this area is a population increase of 115,000, making the population of the City approximately 357,000. Chuck Haley will be quite busy main-

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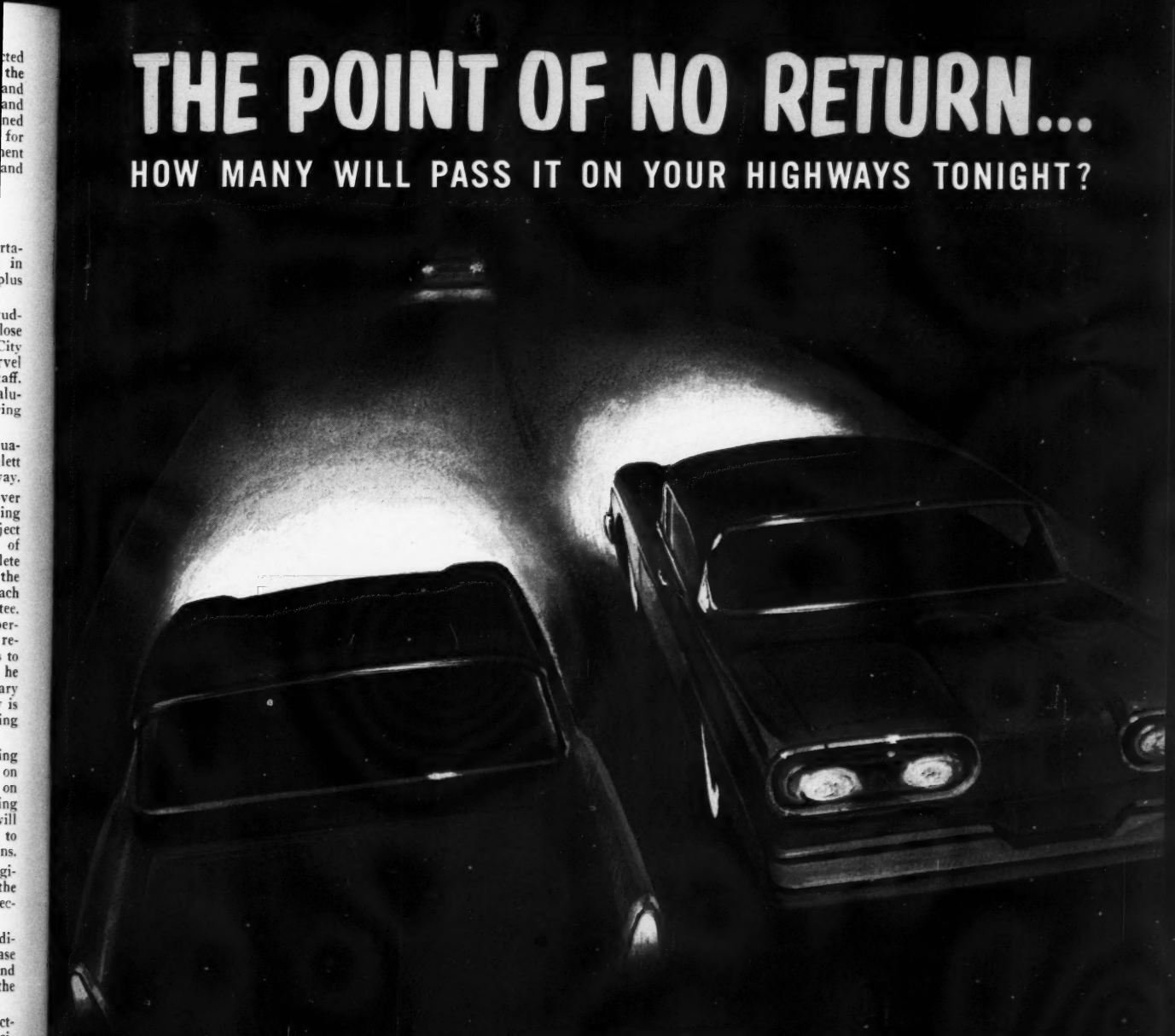

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MICHIGAN SECTION — The Michigan Section meets once a year in Ohio (usually) in recognition of Paul Robinette's long and faithful attendance at meetings of the Michigan Section. At the March meeting, held in Toledo, the photographer snapped a picture showing the host (?) busy collecting money from his guests (?). Also visible are Frank Ronan, Joe Hobrla, Mike Sibal, and Max Hoffman. (Photo by Malo)

taining 42 additional signalized intersections in addition to the 22 new signals he proposes to install during the next year. This will make a total of 235 signalized intersections in the City.

Chuck has hired himself a new assistant by the name of Roy Parker, who comes to Arizona from Sacramento, California.

Oregon Area

The Portland Bureau of Traffic Engineering has moved to the old McElroy Building at 420 S.W. Main Street. With them in the new building are the Planning Commission, some of the Park Bureau, the Meter Maids, and the Traffic Safety Commission. Fred Fowler, Highway Engineering Coordinator, will move in soon. Most of the Portland Traffic Engineering employees are getting a little experience with parking studies since they no longer have their own private parking lot.

Bay Area

Delegates to the California Streets and Highway Conference, held in Berkeley in January, were the guests (paying, of course) at a dinner meeting jointly sponsored by the ITTE and Bay Area section. Dinner was ably managed by Wolf Homburger with an assist by Jim Kell at the bar. After-dinner festivities were highlighted by a demonstration of the drunkometer presented by Captain Ed Moody of the San Francisco Police Department. Accompanying Captain Moody in the finale was Jay Czizek playing a solo on the balloons.

Bob Glenn did his usual fine job in programming the conference. A large number of panel sessions in varied technical fields were successful this year, stimulating audience interest and participation.

Bay Area members got together for lunch in Berkeley on April 9th, and had an informal discussion of various matters affecting the organization. Chairman Bill Marconi received a number of ideas on closer cooperation among the California subsections of ITE and on the role of ITE in connection with pending legislation on traffic matters. Bill withstood all hot-headed demands for immediate action like a rock, but hinted that he would put various committees to work to present some answers by the next meeting.

Bob Crommelin announces that he left San Leandro on April 21st to start as Hayward's Traffic Engineer on May 6th. The Hayward job offers a full-time Junior Engineer as an assistant and a four-man paint and sign crew which is a good start. An increase in salary helps also.

Washington Area

The last Washington Area Meeting was held March 25th at the Top of The Ocean Restaurant in Tacoma. There were 21 members and five guests in attendance.

Rex Still reviewed some aspects of recently passed legislation and court determinations, especially the permissive right turn on red, passing on the right, prohibition of crossing a medial or markings representing a medial, and State rather than local control of speed limit signing. Herb Higgins mentioned other passed legislation and also some legislation awaiting the governor's signature.

Bob Dunn elaborated on the subject of the proposed national redistricting which was publicized in the March, 1959, WesternITE publication. A motion was made that the attending membership go on record as wishing to retain District 6 as it now exists. This motion was unanimously approved by the 21 members attending.

Yosh Kosai, Tacoma Traffic Engineer, who moved his office into roomy quarters in the new County-City Building, was prevailed upon to explain his techniques for acquiring adequate working space. He indicated that the most important stage was the decision, years ago, to erect a new building. After such a building is completed "You can just sort of fall into it."

Consideration of Seattle as a potential site for the 1962 National ITE Conference was discussed. It was decided that the existing Western Section Convention Committee would act on the question and bring a recommendation to the next area meeting.

Brian Lewis of the Traffic Transportation Section of Porter, Urquhart, McCreary and O'Brien, presented as a technical topic, "A New Formula for the Inter-zonal Assignment of Traffic" as it pertains to Origin and Destination information. This concept considers the zones' residential, business, or commercial characteristics and thereby attempts to treat inter-zonal assignments more realistically.

Gene Ireland gave advance notice of a meeting of national experts on street lighting to be held at the Benjamin Franklin Hotel in Seattle, beginning April 27th. Additional information on the meeting will be presented shortly to any who have an interest in street lighting.

The attention of the group was given to the practice of individual citizens who appear to solicit public recognition as expert professionals in the field of transportation and traffic engineering, and who are not recognized as such by professional organizations. Such individuals are usually allied with a political faction type of opposition concerning extensive projects of considerable news value, and offer through news media fallacious information under the guise of professional studies and opinions, though on direct confrontation such an individual may make no allegation to professional status in the field.

Though the professional organization is not set up to deal with such an affront, the group felt that a satisfactory solution may be attained through an association with the Puget Sound Engineering Council. Accordingly, Bill Stancer will investigate and report on this course of action.

Inter-Mountain Area

Eleven members and 11 guests from Denver journeyed to Pueblo, Colorado, April 3, for the third quarterly Inter-Mountain Area Meeting. Several of the people in town for the meeting were able to partake of a field trip in the Pueblo Area during the afternoon, and had an opportunity to visit Pueblo's sign shop and learn of the new master controller which is being installed in the Central Business District to supervise 40 intersections. This system is to have both programming and vehicle detection. The dinner and meeting were held at the Minnequa Club at the south edge of Pueblo. A very entertaining program was prepared and Sam Cocharo is to be congratulated on the arrangements. Chairman Hudspeth conducted the business portion of the meeting, which consisted of further discussion relating to Denver's desires for the 1962 National Convention. Al Pepper provided the group with additional information since the previous meeting, and it was agreed that a letter would be sent to President Dunn advising him that a bid would be made by the Inter-Mountain Area.

A report was also presented concerning the desire of several Inter-Mountain Area members in the Idaho Area wishing to form their own local group. With travel problems being what they are, this suggestion was heartily endorsed by all in attendance, and we hope to see more activity along this line from the Idaho group shortly. Ray Halverson also reports that the Utah members are planning to hold regular monthly meetings, and that he has been appointed as the local Chairman. We were also reminded that at the meeting to be held in Cheyenne in late May or early June, consideration will be given to the appointment of a new Area Chairman for the forthcoming year. Any of you having suggestions or recommendations along this line, should contact Vealess Hudspeth before the next Area Meeting.

A discusison was also held concerning the redistricting of the Institute. There was general agreement that redistricting was advisable, but no specific district boundaries were developed at the meeting. At the conclusion of the business, the meeting was turned over to Sam Cocharo, who introduced the guests and the main speaker of the evening, Charles D. Bell, Street Lighting Engineer for the Southern Colorado Power Company. Mr. Bell presented a very enlightening and entertaining talk, "Getting the Most out of Your Street-Lighting Dollar" and an accompanying film, "Out of Darkness." Mr. Bell, very adeptly illustrated the importance of street lighting as a part of the functions of any Traffic Engineering Department. If Bob O'Connell comes up with as good a program for the Cheyenne Meeting, the feeling will be that this year's meetings will have been the best ever for the area.

The Downtown Denver Improvement Association, in cooperation with the Denver Planning Office and Traffic Engineering Section conducted a postcard survey April 16th on 16th Street. Five thousand postcards were distributed between 7 A.M. and 6 P.M. seeking information on origin, destination and trip purpose of cars passing the check point in the downtown business district. This represented a sampling of approximately 50% of the vehicles crossing the check point during the time of the survey. First indications are that the response to this survey will be very good. Seventy-five cards were returned the same day that the survey was being conducted, and by the end of the first day following the survey, 950 cards had already been returned.

John Burg, and Jim Brown journeyed to Omaha April 20th through 23rd to attend the Freeway Seminar.

Sacramento Area

Dick Wilson, former Traffic Engineer for District X in California, and his wife, Hazel,

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write that they are thoroughly enjoying their visit to Hawaii. Since arriving at the islands on March 18th, they have taken in a "hukilau" on the windward side of Oahu (You ain't seen nothing Dick until you see them "hukilau" on the leeward side of Oahu! — Ed.), attended a pre-broadcast luncheon and presentation of "Hawaii Calls," watched Arthur Godfrey broadcast from the beach terrace at the Royal Hawaiian Hotel, and attended many other fascinating demonstrations such as the hula, etc.

After visiting the other islands, the Wilsons plan to return home by the 4th of May.

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(Continued from page 34)

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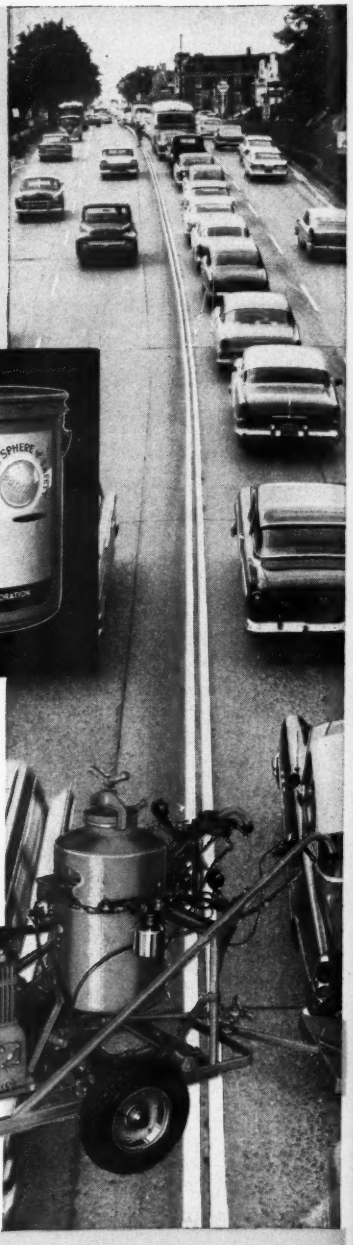

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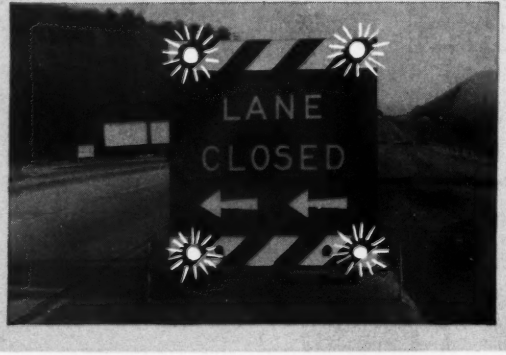

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